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TRANSACTIONS
OF
THE MEDICAL SOCIETY
OF
LONDON.


VOLUME THE EIGHTEENTH.



EDITED BY
CHARLES BARRETT LOCKWOOD, F.R.C.S.,
AND
AMAND ROUTH, M.D.

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| 1793. JAMES JAMESON, M.D. | 1835. WALTER COOPER DENDY. |
| 1794. GILBERT THOMPSON, M.D. | 1836. WILLIAM F. BlicKE, M.D. |
| 1795. JOHN ABERNETHY. | 1837. EDWARD HEADLAND. |
| 1796. JOHN COAKLEY LETTSOM, M.D., F.R.S. | 1838. THEOPHILUS THOMPSON, M.D., F.R.S. |
| 1797. JAMES WARE. | 1839. GEORGE PILCHER. |
| 1798. SAMUEL FERRIS, M.D., F.R.S. | 1840. JAMES RISDON BENNETT, M.D. |
| 1799. EDWARD FORD. | 1841. WM. DINGLE CHOWNE, M.D. |
| 1800. THOMAS BRADLEY, M.D. | 1842. HENRY HANCOCK. |
| 1801. WILLIAM CHAMBERLAINE. | 1843. LEONARD STEWART, M.D. |
| 1802. JOHN SIMS, M.D. | 1844. THOMAS BELL, F.R.S. |
| 1803. JOHN ANDRÉE. | 1845. MARSHALL HALL, M.D. |
| 1804. JOHN COAKLEY LETTSOM, M.D., F.R.S. | 1846. JOHN BISHOP, F.R.S. |
| 1805. GEORGE PINCKHARD, M.D. | 1847. GOLDING BIRD, M.D., F.R.S. |
| 1806. HENRY FIELD. | 1848. FRANCIS HIRD. |
| 1807. JOSEPH ADAMS, M.D. | 1849. WILLIAM HUGHES WILL- SHIRE, M.D. |
| 1808. JOHN MASON GOOD, F.R.S. | 1850. FRANCIS HIRD. |
| 1809. SAYER WALKER, M.D. | 1851. RICHARD ROWLAND. |
| 1810. GEORGE BIRKBECK, M.D. | 1852. EDWIN CANTON. |
| 1811. WILLIAM BLAIR. | 1853. JOHN SNOW, M.D. |
| 1812. RICHARD TEMPLE, M.D. | 1854. HENRY SMITH. |
| 1813. RICHARD SAUMAREZ, F.R.S. | 1855. JAMES FERNANDEZ CLARKE. |
| 1814. GEORGE REES, M.D. | 1856. BENJ. WARD RICHARDSON, M.D., F.R.S. |
| 1815. JOHN TAUNTON. | 1857. WILLIAM ADAMS. |
| 1816. HENRY CLUTTERBUCK, M.D. | 1858. ALFRED BARING GARROD, M.D. |
| 1817. JAMES STEVENSON. | 1859. CHARLES HENRY FELIX ROUTH, M.D. |

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| 1860. JOHN GAY. | 1879. WALTER JOHN COULSON. |
| 1861. ARTHUR LEARED, M.D. | 1880. WILLIAM HENRY BROADBENT, M.D. |
| 1862. VICTOR DE MÉRIC. | 1881. ARTHUR EDWARD DURHAM. |
| 1863. SAMUEL OSBORNE HABERSHON, M.D. | 1882. EDMUND SYMES THOMPSON, M.D. |
| 1864. JOHN LOUIS WILLIAM THUDICHUM, M.D. | 1883. EDWARD LUND. |
| 1865. ROBERT GREENHALGH, M.D. | 1884. CHARLES THEODORE WILLIAMS, M.D. |
| 1866. THOMAS CHRISTOPHER WEEDEN COOKE. | 1885. GEORGE MURRAY HUMPHRY, M.D., F.R.S. |
| 1867. FREDERICK WILLIAM HEADLAND, M.D. | 1886. RICHARD DOUGLAS POWELL, M.D. |
| 1868. WILLIAM FREDERICK TEEVAN. | 1887. Sir WILLIAM MACCORMAC. |
| 1869. GEORGE DUNCAN GIBB, M.D. | 1888. Sir JOSEPH FAYRER, K.C.S.I., M.D., F.R.S. |
| 1870. FRANCIS MASON. | 1889. JONATHAN HUTCHINSON, F.R.S. |
| 1871. WILLIAM HOLMELEY, M.D. | 1890. ARTHUR ERNEST SANSOM, M.D. |
| 1872. FREDERICK JAMES GANT. | 1891. Sir JOSEPH LISTER, Bart., F.R.S. |
| 1873. JOHN COCKLE, M.D. | 1892. Sir JAMES CRICHTON BROWNE, M.D., F.R.S. |
| 1874. ROBERT BRUDENELL CARTER. | 1893. W. MITCHELL BANKS. |
| 1875. GEORGE BUCHANAN, M.D. | 1894. WILLIAM M. ORD, M.D. |
| 1876. ERASMUS WILSON, F.R.S. | 1895. A. PEARCE GOULD. |
| 1877. JOHN HUGHLINGS JACKSON, M.D., F.R.S. | |
| 1878. ALFRED CARPENTER, M.D. | |

THE FOTHERGILLIAN GOLD MEDALLISTS.

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|---------------------------------------|------------------------------------------------|
| 1787. WILLIAM FALCONER, M.D. | 1852. FREDERICK WILLIAM HEAD- LAND. |
| 1790. ROBERT WILLAN, M.D. | 1853. ALFRED WILLIAM POLAND. |
| 1791. JOHN COAKLEY LETTSOM, M.D. | 1854. BENJAMIN WARD RICHARDSON, M.D. |
| 1795. JOHN MASON GOOD. | 1856. WILLIAM BURKE RYAN. |
| 1801. FRANCIS BOUTTATZ, M.D. | 1857. EDWIN CANTON. |
| 1803. EDWARD JENNER, M.D. | 1858. THOMAS HERBERT BARKER, M.D. |
| 1824. ROBERT W. BAMPFIELD. | 1859. ALDERMAN THOMAS HOUGHTON WATERS. |
| 1828. JOHN GEORGE PARRY. | 1868. JOHN CLAY. |
| 1831. WILLIAM AUGUSTUS GUY. | 1870. THOS. SMITH CLOUSTON, M.D. |
| 1834. WILLIAM JAMES CLEMENT. | 1872. EDWARDS CRISP, M.D. |
| 1835. GEORGE MOORE. | 1873. JOHN KENT SPENDER, M.D. |
| 1836. THOMAS EGERTON BRYANT. | 1877. PETER MURRAY BRAIDWOOD, M.D. |
| 1838. GEORGE PILCHER. | 1878. JOHN MILNER FOTHERGILL, M.D. |
| 1840. SAMUEL OSBORN. | 1882. THOMAS MICHAEL DOLAN, M.D. |
| 1842. JAMES RISDON BENNETT, M.D. | 1883. NORMAN PORRITT. |
| 1843. JOHN WEAVER LEVER, M.D. | 1886. JOHN STRAHAN. |
| 1844. HENRY PRATT ROBERTS. | 1888. HOBART AMORY HARE, M.D., U.S.A. |
| 1845. WALTER COOPER DENDY. | 1893.* WILLIAM RICHARD GOWERS, M.D., F.R.S. |
| 1846. ROBERT MORTIMER GLOVER, M.D. | |
| 1847. SILAS STEDMAN. | |
| 1849. JOHN MILLIGAN. | |
| 1850. RICHARD PAYNE COTTON, M.D. | |
| 1851. RICHARD HODGES. | |

* *First Triennial Award under the Charity Commissioners' New Scheme,*
vide *Trans.*, vol. xiv, p. xi.

THE HONORARY FELLOWS.

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1893. BARNES, ROBERT, M.D., Lingwood, Liss, Hants, LL, C.
1876. BARNES, J. K., M.D., Surgeon-General U.S. Army, Washington.
1881. BILLINGS, JOHN S., M.D., Washington, Surgeon to the United States Army; Librarian to the Surgeon-General's Library, Washington.
1894. CATRIN, LOUIS, M.D., Médecin-major de première classe, Professeur agrégé à l'Ecole du Val-de-Grace, Paris.
1873. CHAUVEAU, A., Professor of Physiology at the Medical School of Lyons.
1890. CRUDELI, TOMMASI, M.D., Rome.
1881. DA COSTA, J. M., M.D., Professor of Medicine in the Jeffreson Medical College, 1700, Walnut-street, Philadelphia.
1881. EMMET, THOMAS ADDIS, M.D., 89, Madison-avenue, Surgeon to the Woman's Hospital of the State of New York.
1886. GAIRDNER, WILLIAM TENNANT, M.D., LL.D. Edin., F.R.C.P. Edin., F.R.S., 225, St. Vincent-street, Glasgow.
1894. GANT, FREDERICK JAMES, F.R.C.S., 16, Connaught-square, W., Consulting Surgeon to the Royal Free Hospital. P, VP 2, LL, O, C 3.
1881. HALLA, JOSEPH, Professor of Medicine in the University of Prague.
1869. HARE, CHARLES JOHN, M.D., Berkeley House, Manchester-square, W., Consulting Physician to University College Hospital, and late Professor of Clinical Medicine in University College. P, VP 2. C 8, LL. *Trustee.*
1890. HOLMGREN, FRITHIOF, Professor, Upsala.
1883. HUMPHRY, Sir GEORGE MURRAY, M.D., F.R.S., Professor of Surgery in the University of Cambridge. O, C 2.
1875. JENNER, Sir WILLIAM, Bart., K.C.B., D.C.L., LL.D., M.D., F.R.S., Greenwood, Durley, Hants, Physician-in-Ordinary to H.M. the Queen and to H.R.H. the Prince of Wales; late President of the Royal College of Physicians; Emeritus Professor of Clinical Medicine in University College, London; Consulting Physician to University College Hospital.
1890. KOCHER, THEODOR, Professor, Berne.
1883. LE ROY DE MERICOURT, A., M.D., Paris.
1890. LOMBARD, HENRI-CLERMOND, M.D., Geneva.
1878. MITCHELL, S. WEIR, M.D., Walnut-street, Philadelphia.
1881. NUSSBAUM, JOHN NEPOMUK RITTER VON, M.D., Professor of Surgery in the University of Munich.

1875. OLLIER, Professor, Lyons.
1873. PAGET, Sir JAMES, Bart., D.C.L., LL.D., F.R.S., 5, Park-square, W.,
Serjeant-Surgeon to H.M. the Queen ; Surgeon to H.R.H. the
Prince of Wales ; Consulting Surgeon to St. Bartholomew's Hospital.
1876. PANCOAST, JOSEPH, M.D., 1030, Chesnut-street, Philadelphia, Professor
of Anatomy in the Jeffreson Medical College.
1877. SANNÉ, A., 12, Place de Laborde, Paris.
1881. TARNIER, STEPHANIE, M.D., Professor of Obstetric Medicine in the
School of Medicine, Paris.
1873. VIRCHOW, RUDOLPH, M.D., Professor of Pathological Anatomy in the
University of Berlin.

CORRESPONDING FELLOWS.

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1851. ALBARO, J. MENDEZ, Madrid.
 1882. BADALONI, GIUSEPPE, M.D., Fano, Prov. di Pesaro, Italy.
 1856. BAKER, ALBERT, M.D., The Laurels, Pinhoe, Exeter.
 1855. BEARDSLEY, AMOS, Bay Villa, Grange, Lancashire.
 1850. BENAVENTE, MARIANO, Madrid.
 BENEKE, F. W., M.D., New York.
 1850. BÖHM, PROFESSOR, M.D., Vienna.
 BOTTINI, GIUSEPPE, M.D., Milan.
 1837. BUHRING, J. J., M.D., Berlin.
 1855. COATES, CHARLES, M.D., F.R.C.P., 10, Circus, Bath, Consulting Physician
 to the Bath Royal United Hospital. c 3.
 1850. COX, WILLIAM ISIDORE, Hawkesbury, Upton, Gloucestershire. c.
 1876. DE MUYNCK, J., M.D., Ghent.
 1836. ECSTEIN, SIGISMUND, M.D., Vienna.
 EYLANDT, JOHANN EMIL, M.D., Curland, Russia.
 1853. FALLOT, R., M.D., St. Laurent d'Aigouze, Montpellier, France.
 1889. FRANK, PHILIP, M.D., F.R.C.P., Cannes, France.
 1876. GRIFFITH, RICHARD GLYN, Allahabad, India.
 1864. HASENFELD, EMMANUEL, M.D., Pesth.
 HYMAN, —, M.D., Antwerp.
 1851. IZQUIERDO, SEBASTIAN OBTEGA, Madrid.
 1875. JONES, PHILIP SYDNEY, M.D., F.R.C.S., Examiner in Medicine in the
 University of Sydney, Australia, Hon. Consulting Surgeon to the
 Sydney Infirmary.
 1861. JOURNEZ, HENRI, M.D., 43, Rue de la Charité, Bruxelles, Belgique.
 1851. KÖLLIKER, ALBERT, M.D., Professor of Anatomy and Physiology at the
 University of Wurzburg.
 1876. LEIGHTON, WALTER H., M.D., Lowell, Massachusetts, U.S.
 LEON, JOSE, Madrid.
 1851. LLANOS, ANTONIO CAMPO, Madrid.
 1851. LOVERA, JOSE, Madrid.
 1851. MARINO, BONIFACIO MATREOS, Madrid.
 MENDEZ, BARTHOLOME, Madrid.
 MOLINA, M. M., Madrid.
 1851. NEGRI, GAETANO, M.D. Pisa.
 ORTEGA, J. R., Madrid.

1865. PERUZZI, DOMENICO, M.D., 22, Via Mazzini, Bologna.
1882. RESTREPO, ALESSANDO EDUARDO, M.D., Medellin, Columbia, U.S.A.
1886. ROCHA, A., M.D., Coimbra, Beira, Portugal.
1860. ROUSSEL, M.D., Dean of the Faculty of Medicine, Montpellier.
SCHARLAN, GUS. W., M.D., Stettin, Prussia.
1876. SCHMITZ, RICHARD, M.D., Neuenahr.
1874. SCHUTGOWSKY, J., St. Petersburg.
1851. SESSE, M., Mesqui, Madrid.
STOCKWELL, THOMAS GOLDESBOUGH, F.R.C.S., 6, Circus, Bath,
Surgeon to the Bath Royal United Hospital.
- TEREZA, FELIX GARCIA, Madrid.
- VALDEZ, FRANCO CORTIGO, Madrid.
- WILLIAMS, CHARLES, F.R.C.S. Edin., 48, Prince of Wales-road,
Norwich; Surgeon to the Norfolk and Norwich Hospital.

THE FELLOWS

OF

THE MEDICAL SOCIETY OF LONDON.

(Corrected to 1st October, 1895.)

EXPLANATION OF ABBREVIATIONS.

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|---------------------|---------------------------------------------|
| P.—PRESIDENT. | FM.—FOTHERGILLIAN GOLD MEDALLIST. |
| VP.—VICE-PRESIDENT. | SM.—SILVER MEDALLIST. |
| T.—TREASURER. | O.—ORATOR. |
| L.—LIBRARIAN. | CFC.—CHAIRMAN, HOUSE AND FINANCE COMMITTEE. |
| S.—SECRETARY. | §—SEC. FOR FOREIGN CORRESPONDENCE. |
| C.—COUNCILLOR. | LL.—LETT SOMIAN LECTURER. *—LIFE MEMBERS. |
| | TR.—TRUSTEE. |

The number prefixed signifies the date of election. The figures appended indicate the number of Sessions served, and refer to past appointments ONLY.

1890. ABBOT-ANDERSON, WILLIAM MAURICE, M.B., 10, Old Cavendish-street, Cavendish-square, W.
1888. ABBOTT, CHARLES EDWARD, M.R.C.S., Shrapnels, Taunton.
1891. ABRAHAM, PHINEAS S., M.D., 2, Henrietta-street, Cavendish-square, W.
1894. ACHARD, ALEXANDER LOUIS, M.D., 9, Blandford-street, Portman-square, W.
1890. ACKLAND, ROBERT CRAIG, M.R.C.S., 13, Savile-row, W.
1883. ACLAND, THEODORE DYKE, M.D., 74, Brook-street, Grosvenor-square, W.
C.
1884. ADAM, JAMES, M.D., Malling-place, West Malling, Kent.
1889. ADAMS, JAMES, M.D., 4, Chiswick-place, Eastbourne.
1878. ADAMS, JOSIAH OAKE, M.D., Brook House, Upper Clapton, E.
1852. *ADAMS, WILLIAM, F.R.C.S., 5, Henrietta-street, Cavendish-square, W.
P, C 8, O, VP 3, LL.
1878. *ALLCHIN, WILLIAM HENRY, M.D., F.R.S.E., 5, Chandos-street, Cavendish-square, W. VP 2, *Hon. Librarian, Orator.*
1873. ALLEN, HENRY MARCUS, F.R.C.P. Edin., 20, Regency-square, Brighton.

1873. ALLFREY, CHARLES HENRY, M.D., Plas Newydd, St. Leonards-on-Sea.
 1883. ALLINGHAM, HERBERT W., F.R.C.S., 25, Grosvenor-street, W. c 3.
 1872. *ALLINGHAM, WILLIAM, F.R.C.S., 25, Grosvenor-street, W. c.
 1894. ALSTON, WILLIAM EVELYN, M.B., Wheathampstead, Herts.
 1860. ALTHAUS, JULIUS, M.D., 48, Harley-street, W. c 5, § 3.
 1885. ANDERSON, JOHN, M.D., C.I.E., 9, Harley-street, W.
 1889. ANDERSON, WILLIAM, F.R.C.S., 2, Harley-street, W. c.
 1888. ANDREWES, FREDERICK WILLIAM, M.B., 35, Welbeck-street, W.
 1869. ARMITAGE, SAMUEL HARRIS TATHAM, M.D., 39, Grosvenor-street, W.
 1894. ARMSTRONG, WILLIAM, M.R.C.S., Thorncliffe, Buxton.
 1894. ASHE, WILLIAM PERCY, M.D., 41, Sloane-gardens, S.W.
 1873. ATKINSON, EDWARD, M.R.C.S., 93, Albion-street, Leeds.
 1892. AYRES, CHARLES JAMES, M.D., 47A, Welbeck-street, W.
1873. BAGSHAW, FREDERIC, M.D., 35, Warrior-square, St. Leonards-on-Sea. c.
 1871. BAILEY, GEORGE HEWLETT, M.R.C.S., 43, Queen Anne-street, W.
 1892. BAILEY, HENRY FREDERICK, M.R.C.S., The Hollies, Lee-terrace, Lee, S.E. c 2.
 1894. BAILEY, ROBERT COZENS, M.S., 21, Welbeck-street, W.
 1891. BAILY, PERCY J., M.B., County Asylum, Hanwell, W.
 1876. *BAKER, HENRY FRANCIS, F.R.C.S. Edin., 2, Mandeville-place, Manchester-square, W. c.
 1890. BAKER, WILLIAM HENRY, M.R.C.S., 40, Norfolk-terrace, Bayswater, W.
 1891. BALL, JAMES BARRY, M.D., 12, Upper Wimpole-street, W.
 1881. BALLANCE, CHARLES ALFRED, M.S., 106, Harley-street, W. s 2, c 3.
 1884. BANKS, W. MITCHELL, F.R.C.S., 28, Rodney-street, Liverpool. o, c.
 1859. BARNES, JOHN WICKHAM, F.R.C.S., 3, Bolt-court, E.C. s 2, vp, c 3.
 1883. *BARNES, ROBERT, M.D., *Honorary Fellow (q. v.)*.
 1895. BARRATT, JOHN OGLETHORPE WAKELIN, M.D., 26, Upper Wimpole-street, W.
 1874. BARRETT, HOWARD, M.R.C.S., 49, Gordon-square, W.C. c. *Councillor*.
 1884. BARROW, ALBERT BOYCE, F.R.C.S., 37, Wimpole-street, W. c.
 1886. BARWELL, RICHARD, F.R.C.S., 55, Wimpole-street, W.
 1884. BATEMAN, FREDERICK AUGUSTUS NEWTON, M.R.C.S., 4, Charles-street, St. James's-street, S.W.
 1886. BATTERHAM, JOHN WILLIAMS, M.B., Bank House, Grand-parade, St. Leonards-on-Sea.
 1888. BATTLE, WILLIAM HENRY, F.R.C.S., 2, Mansfield-street, W.
 1882. BEACH, FLETCHER, M.B., Winchester House, Kingston-hill, Surrey, and 64, Welbeck-street, W. c.
 1887. BEALE, EDWIN CLIFFORD, M.B., 23, Upper Berkeley-street, W.
 1891. BEALE, PEYTON T. B., F.R.C.S., 61, Grosvenor-street, W.
 1880. BEEVOR, CHARLES EDWARD, M.D., 33, Harley-street, W. s 2, c. *Trustee*.
 1889. BEEVOR, Sir HUGH REEVE, Bart., M.D., 18, Serjeants'-inn, Fleet-street, E.C.

1887. BENHAM, FREDERICK LUCAS, M.D., 93, Elizabeth-street, Eaton-square, S.W.
1881. BENNET, ROBERT OTTIWELL-GIFFORD, M.D., Tankerville House, Park-place, Buxton.
1883. BENNETT, WILLIAM HENRY, F.R.C.S., 1, Chesterfield-street, Mayfair, W. c.
1887. BERRY, JAMES, F.R.C.S., 60, Welbeck-street, W.
1873. BEVERIDGE, JAMES SPOWART, M.R.C.P. Edin., Lochinver, Lairg, N.B.
1890. BIDWELL, LEONARD ARTHUR, F.R.C.S., 59, Wimpole-street, W.
1868. BIRD, GEORGE, M.D., 49, Welbeck-street.
1888. BIRD, MATTHEW MITCHELL, M.D., St. Mary's Hospital, W.
1850. *BIRKETT, JOHN, F.R.C.S., 62, Green-street, Grosvenor-square, W. vp, c 6.
1883. BISS, CECIL YATES, M.D., 135, Harley-street, W.
1889. BISSHOPP, FRANCIS ROBERT BRYANT, M.B., Belvedere, Lonsdale-gardens, Tunbridge Wells.
1886. *BLACK, WILLIAM GALL, F.R.C.S., 2, George-square, Edinburgh.
1881. BLAKER, WALTER CAMPBELL, Bognor, Sussex.
1888. BLANC, LEON, M.D., Aix les Bains, France.
1871. *BLOXAM, JOHN ASTLEY, F.R.C.S., 75, Grosvenor-street, W. vp 2, s 2, c 3.
1867. BOND, THOMAS, F.R.C.S., 7, The Sanctuary, Westminster, S.W. c.
1879. BOTT, HENRY, M.R.C.S., Brentford, Middlesex.
1872. BOULTON, PERCY, M.D., 6, Seymour-street, Portman-square, W. c.
1886. BOURNS, NEWCOME WHITELAW, M.D., 78, Redcliffe-gardens, S.W.
1886. BOUSTEAD, ROBINSON, M.D., Surgeon Lieutenant-Colonel, c/o Messrs King & Co., 45, Pall Mall, S.W.
1889. BOWLES, ROBERT LEAMON, M.D., 16, Upper Brook-street, W.
1883. BRADSHAW, JAMES DIXON, M.B., Savile Club, Piccadilly.
1868. BRAIDWOOD, PETER MURRAY, M.D., Coleshill, Amersham, Bucks. F.M., 1877.
1869. BRAINE, FRANCIS WOODHOUSE, F.R.C.S., 67, Wimpole-street, W. vp 2, s 2, c 3, SM.
1889. BRAINE, C. CARTER, F.R.C.S., 67, Wimpole-street, W.
1876. BREWER, ALEXANDER HAMPTON, 136, Richmond-road, Dalston, E.
1873. BRIDGWATER, THOMAS, M.B., LL.D., Harrow, Middlesex. c.
1893. BROADBENT, JOHN FRANCIS HARPIN, M.B., 84, Brook-street, W.
1862. BROADBENT, Sir WILLIAM HENRY, Bart., M.D., 84, Brook-street, W. p, vp, o, LL, c 4.
1890. BROOK, WILLIAM FREDERICK, F.R.C.S., Langlands House, Swansea.
1878. BROOKS, JOB EDWIN, 54, Mill-street, Ludlow, Salop.
1878. BROWN, ANDREW, M.D., Elton Villa, 1, Bartholomew-road, Kentish Town, N.W.
1889. BROWNE, GEORGE BUCKSTON, M.R.C.S., 80, Wimpole-street, W. c 2.
1873. BROWNE, LENNOX, F.R.C.S. Edin., 15, Mansfield-street, Portland Place, W.

XXVIII

1887. BRUCE, JOHN MITCHELL, M.D., 23, Harley-street, W. *Councillor*.
1873. BRUNJES, MARTIN, M.R.C.S., 33A, Gloucester-place, Bryanston-square, W.
1862. BRUNTON, JOHN, M.D., 21, Euston-road, N.W. VP, C 2.
1874. *BRUNTON, THOMAS LAUDER, M.D., F.R.S., 10, Stratford-place, W.
LL, VP, C 4, SM.
1850. *BRYANT, THOMAS, F.R.C.S., 65, Grosvenor-street, W. P, VP, LL, S 2, C 4.
Trustee.
1885. *BUNNY, J. BRICE, M.R.C.S., Newbury, Berks.
1872. BURGER, ALEXANDER, M.D., 10, Finsbury-square, E.C.
1890. BUTLER, PATRICK, L.K.Q.C.P., 22, Duke-street, Portland-place, W.
1886. BUTLER-SMYTHE, ALBERT CHARLES, F.R.C.S., 76, Brook-street, W.
1872. BYAS, EDWARD HEGLEY, M.R.C.S., 10, Cambridge-gate, Regent's Park, N.W.
1886. CAHILL, JOHN, F.R.C.S., 12, Seville-street, Lowndes-square, Hyde Park, S.W. C 2. *Councillor*.
1892. CALDWELL, ROBERT, F.R.C.S., Surgeon Captain, care of Messrs. Holt and Co., 17, Whitehall-place, S.W.
1893. CALEY, HENRY ALBERT, M.D., 24, Upper Berkeley-street, W.
1891. CALVERT, JAMES, M.D., 36, Queen Anne-street, W.
1888. CAMPBELL, CHARLES M., M.D., *Travelling*.
1892. CARGILL, LIONEL VERNON, F.R.C.S., Royal Eye Hospital, St. George's-circus, S.E.
1892. CARLESS, ALBERT, F.R.C.S., 10, Welbeck-street, W.
1889. CARNALL, EDWARD, M.R.C.S., Small-pox Hospital, Highgate, N.
1882. CARPENTER, ARTHUR BRISTOWE, M.B., Wykeham House, Bedford Park, Croydon.
1889. CARR, JOHN WALTER, M.D., 19, Cavendish-place, W.
1871. CARTER, ROBERT BRUDENELL, F.R.C.S., 31, Harley-street, W. P, VP, O, LL, C 4.
1889. CARTWRIGHT, ALEXANDER, M.R.C.S., 32, Old Burlington-street, W.
1876. CARTWRIGHT, S. HAMILTON, 45, Albert-gate, Hyde-park, W.
1876. *CATHCART, SAMUEL, M.R.C.P. Edin., Prudhoe House, High-road, Tottenham, E.
1889. CAUTLEY, EDMUND, M.B., 15, Upper Brook-street, W.
1882. CAVAFY, JOHN, M.D., 2, Upper Berkeley-street, W. C 3.
1891. CHAPLIN, T. H. ARNOLD, M.B., 24, Finsbury-circus, E.C.
1885. CHASSEAUD, WILLIAM, M.D., Smyrna, Asia Minor.
1889. CHEYNE, WATSON, F.R.C.S., F.R.S., 75, Harley-street, W. C. *Lett-somian Lecturer*.
1877. *CHISHOLM, EDWIN, M.D., Sydney, New South Wales.
1894. CHRISTMAS, CHARLES DENN, M.D., De Pany's Avenue, Bedford.
1871. CHURTON, THOMAS, M.D., 35, Park-square, Leeds. C.
1875. CLARK, ANDREW, F.R.C.S., 71, Harley-street, W. *Councillor*.
1873. CLARKE, THOMAS KILNER, F.R.C.S., 66, John William-street, Huddersfield.

1883. CLARKE, WILLIAM BRUCE, F.R.C.S., 51, Harley-street, W. c.
 1894. CLINCH, THOMAS ALDOUS, M.B., 4, Ridgmount-gardens, W.C.
 1879. *CLUTTON, HENRY HUGH, F.R.C.S., 2, Portland-place, W. c 2. *Vice-President.*
 1894. COCHRANE, JAMES MACKEAND, M.D., 10, Weymouth-street, W.
 1849. *COCKLE, JOHN, M.D., The Lodge, West Molesey, Surrey. p, vp, o, l 3, c 3, sm.
 1893. COLE, ROBERT HENRY, M.B., 53, Upper Berkeley-street, W.
 1887. COLLIER, WILLIAM, M.D., 62, High-street, Oxford. c.
 1893. COLLUM, ARCHIE TILLYER, F.R.C.S., 7, Grosvenor-street, W.
 1892. COLMAN, WALTER S., M.D., 22, Wimpole-street, W.
 1871. COOK, JOHN, M.D., 1, Nottingham-terrace, Regent's Park, N.W.
 1862. COOPER, ALFRED, F.R.C.S., 9, Henrietta-street, Cavendish-square, W. c 3, vp.
 1888. COOPER, ARTHUR, 20, Old Burlington-street, W.
 1894. COOPER, PETER, M.R.C.S., 35, Shooters-hill-road, Blackheath, S.E.
 1894. CORBOULD, VICTOR A. L. E., M.R.C.S., 50, Victoria-road, Kensington, W.
 1872. CORFIELD, WILLIAM HENRY, M.D., 19, Savile-row, W. c.
 1892. COTTERELL, EDWARD, F.R.C.S., 5, West Halkin-street, Belgrave-square, S.W.
 1891. COUMBE, JOHN BATTEN, M.D., Wargrave, Henley-on-Thames.
 1879. COUPLAND, SIDNEY, M.D., 16, Queen Anne-street, W. c 2. *Vice-President.*
 1889. COURTNEY, GUY BUDD, M.B., 28, Augusta-road, Ramsgate.
 1874. CRAIGIE, JOHN HAMILTON, 13, Savile-row, W. c.
 1873. CRAVEN, ROBERT MARTIN, F.R.C.S., J.P., 14, Albion-street, Hull.
 1889. CRAWFORD, JAMES, M.D., Grosvenor-mansions, 80, Victoria-street, S.W.
 1871. CRICHTON-BROWNE, Sir JAMES, M.D., F.R.S., 61, Carlisle-mansions, S.W. o. c. *President.*
 1881. CRIPPS, WILLIAM HARRISON, F.R.C.S., 2, Stratford-place, W. c 2.
 1880. CRITCHETT, GEORGE ANDERSON, F.R.C.S. Edin., 21, Harley-street, W.
 1880. CROCKER, HENRY RADCLIFFE, M.D., 121, Harley-street. c 3.
 1881. CROSS, FRANCIS RICHARDSON, F.R.C.S., Worcester House, Clifton, Bristol.
 1890. CULLINGWORTH, CHARLES JAMES, M.D., 46, Brook-street, W. c 3.
 1874. CUMBERBATCH, ALPHONSO ELKIN, F.R.C.S., 80, Portland-place, W. c 2.
 1892. DA COSTA, FRANCIS XAVIER, F.R.C.S., Charing Cross Hospital, W.C.
 1894. DALBY, JOHN LYTTLETON, M.R.C.S., Eastern Counties Hospital, Ipswich.
 1871. DALBY, Sir WILLIAM BARTLETT, F.R.C.S., 18, Savile-row, W. c. p. *Councillor.*
 1894. DALDY, ARTHUR MANTELL, M.D., Springfield-road, Kingston-on-Thames.

1864. DALE, GEORGE CORNELIUS, M.D., 13, Nightingale Park-crescent, Wandsworth Common, S.W.
1881. DALLAWAY, DENNIS JOSEPH WILLIAM, L.R.C.P. Edin., The Knoll, Kingston-hill, Surrey.
1873. DALY, OWEN, M.D., J.P., 26, Albion-street, Hull.
1885. DAVIES-COLLEY, JOHN NEVILLE COLLEY, F.R.C.S., 36, Harley-street, W. c 3.
1890. DAVIS, HENRY, M.R.C.S., 60, Queen Anne-street, W.
1889. *DAVISON, JAMES, M.D., "Streate Place," Bath-road, Bournemouth.
1880. DAVSON, SMITH HOUSTON, M.D., Campden Villa, 203, Maida-vale, W. c 3.
1868. *DAVY, RICHARD, F.R.C.S., F.R.S.E., Burstone House, Bow, North Devon. vp, s 2, sm, § 2.
1876. DAWES, RICHARD ST. MARK, M.R.C.S., Gawler, South Australia.
1880. DAWSON, YELVERTON, M.D., Heathland, Southborne-on-Sea, Christchurch, Hants.
1894. DEAN, HENRY PERCY, M.S., 84, Wimpole-street, W.
1883. DENT, CLINTON THOMAS, F.R.C.S., 61, Brook-street, Grosvenor-square, W. c 3.
1891. DIVER, EBENEZER, M.D., Yately House, Kenley, Surrey.
1893. DOCKRELL, MORGAN, M.D., 35, Bruton-street, W.
1885. DODD, HENRY WORK, F.R.C.S., 136, Harley-street, W.
1882. DOLAN, THOMAS MICHAEL, M.D., Horton House, Halifax. FM 1882.
1881. DORAN, ALBAN HENRY GRIFFITHS, F.R.C.S., 9, Granville-place, W. c 3.
1890. DOUGLAS, WILLIAM, M.D., Dalkeith House, 7, Clarendon-place, Leamington Spa.
1871. DOWSE, THOMAS STRETCH, M.D., 14, Welbeck-street, W. § 3, c 3.
1877. DREW, JOHN HENRY, M.R.C.S., 38, Eastbourne-terrace, Hyde Park, W. c 6.
1881. DREWITT, FREDERIC GEORGE DAWTREY, M.D., 2, Manchester-square, W.
1886. DUCKWORTH, Sir DYCE, M.D., 11, Grafton-street, Piccadilly, W.
1848. *DUNCAN, JAMES, M.B., 8, Henrietta-street, Covent Garden, W.C.
1884. DUNCAN, WILLIAM, M.D., 6, Harley-street, W.
1884. DURHAM, FREDERICK, F.R.C.S., 82, Brook-street, W.
1891. EASTES, THOMAS, M.D., 3, Shakespeare-terrace, Folkestone.
1893. ECCLES, ARTHUR SYMONS, M.B., 23, Hertford-street, Mayfair, W.
1892. EDDOWES, ALFRED, M.D., 25, Old Burlington-street, W.
1860. EDMUNDS, JAMES, M.D., 29, Dover-street, W.
1880. EDWARDS, FREDERICK SWINFORD, F.R.C.S., 55, Harley-street, W. c 2. *Councillor.*
1868. ELLIOTT, GEORGE FREDERICK, M.D., 1, Albion-street, Hull.
1882. ELLIOTT, THOMAS, M.D., Monson-place, Tunbridge Wells.
1889. EMBLETON, DENNIS CAWOOD, M.R.C.S., St. Wilfrid's, Bournemouth.
1883. EMOND, E., M.D., 113, Boulevard Beaumarchais, Paris.
1883. ENGLISH, EDGAR, M.R.C.S., 1, Thorne-road, Doncaster.
1880. ENGLISH, THOMAS JOHNSTON, M.D., 128, Fulham-road, S.W.

1889. ESLEB, ROBERT, M.D., 4, Queen's-road, Peckham, S.E.
 1891. EUAN-SMITH, EUAN McLAURIN, M.R.C.S., 253, Cromwell-road, S.W.
 1894. EVANS, WILLMOTT HENDERSON, F.R.C.S., 6, Gower-street, W.C.
 1883. EWART, Sir JOSEPH, M.D., J.P., Retired Dep. Surgeon-General, Bengal Army, Montpellier Hall, Brighton. c.
 1877. EWART, WILLIAM, M.D., 33, Curzon-street, Mayfair, W. c.
 1889. FAIRBANK, FREDERICK ROYSTON, M.D., 16, Eversfield-place, St. Leonards-on-Sea.
 1884. FARDON, EDWARD ASHBY, M.R.C.S., Middlesex Hospital, W.
 1873. FAYRER, Sir JOSEPH, K.C.S.I., LL.D., M.D., F.R.S., 16, Devonshire-street, Portland-place, W. p, vp, ll, sm, o, c.
 1884. FENTON, FREDERICK ENOS, F.R.C.S., 33, Welbeck-street, W.
 1888. FENWICK, BEDFORD, M.D., 20, Upper Wimpole-street, W.
 1885. FENWICK, EDWIN HURRY, F.R.C.S., 14, Savile-row, W. c.
 1887. FERRIER, DAVID, M.D. Edin., F.R.S., 34, Cavendish-square, W. Councillor.
 1878. FIELD, GEORGE, M.R.C.S., 34, Wimpole-street, W. c.
 1894. FISHER, FREDERICK CHARLES, F.R.C.S., King's Langley, Herts.
 1876. FISHER, FREDERIC RICHARD, F.R.C.S., 17, Wimpole-street, W.
 1894. FLEMING, SAMUEL, M.B., Cranley-gardens, Highgate, N.
 1884. FLINT, ARTHUR, M.D., J.P., Westgate Lodge, Westgate-on-Sea.
 1878. *FONMARTIN, HENRY DE, M.D., 26, Newberry-terrace, Lower Bullar-street, Southampton.
 1893. FORBES, NORMAN HAY, F.R.C.S., Edin., Montpelier Lodge, Tunbridge Wells.
 1884. FOTHERBY, HENRY ARTHUR, 17, Scarsdale-terrace, Cheniston-gardens, Kensington, W.
 1879. FOWLER, JAMES KINGSTON, M.D., 35, Clarges-street, Mayfair, W. s 2, c.
 1873. FOX, ARTHUR EDWARD WELLINGTON, M.B., C.M., 16, Gay-street, Bath. c.
 1887. FOX, FORTESCUE, M.D., Strathpeffer Spa, Ross-shire.
 1871. FOX, FRANCIS, M.R.C.S., 68, Wimpole-street, W. c 3.
 1885. FOX, R. HINGSTON, M.D., 23, Finsbury-square, E.C.
 1879. FOX, THOMAS COLCOTT, M.B., 14, Harley-street, W. s 2. c 2.
 1887. FRAZER, ROBERT FAIR, 185, Lavender-hill, New Wandsworth, S.W.
 1868. FREER, ALFRED, J.P., Stourbridge, Worcestershire.
 1886. FRITH, BAPTIST GAMBLE, M.B., 29, Cornwallis-gardens, Hastings.
 1884. FROST, WILLIAM ADAMS, F.R.C.S., 17, Queen Anne-street, W. c 2.
 1894. FYFFE, WILLIAM KINGTON, M.B., 19, Duke-street, Manchester-square, W.
 1883. GABBETT, HENRY SINGER, M.D., 8, Chiswick-place, Eastbourne.
 1862. *GANT, FREDERICK JAMES, F.R.C.S., *Honorary Fellow (q. v.)*.

1847. *GARROD, Sir ALFRED BARING, M.D., F.R.S., 10, Harley-street, W.
P, VP 2, LL, O, C 9.
1887. GARROD, ARCHIBALD EDWARD, M.D., 9, Chandos-street, Cavendish-square, W. c 2. *Councillor*.
1893. GARSON, JOHN GEORGE, M.D., 32, Duke-street, St. James's, S.W.
1891. GASTER, AUGHEL, M.D., 224, Belsize-road, N.W.
1887. GAY, JOHN, 119, Upper Richmond-road, Putney, S.W.
1879. GIBBES, HENEAGE, M.D., The University, Michigan, U.S.A.
1856. GIBBON, SEPTIMUS, M.B., 39, Oxford-terrace, W.
1882. GIBBONS, ROBERT ALEXANDER, M.D., 29, Cadogan-place, S.W.
1893. GIBSON, CHARLES, M.D., Fern Villa, Harrogate.
1881. GIFFARD, DOUGLAS W., M.R.C.S., 5, Pavilion-parade, Brighton.
1867. GILL, WILLIAM, M.R.C.S., 11, Russell-square, W.C. c.
1894. GILL, RICHARD, F.R.C.S., 72, Wimpole-street, W.
1869. GODSON, CLEMENT, M.D., 9, Grosvenor-street, W. VP, C 3, S 2, SM.
1873. GOODSALL, DAVID HENRY, F.R.C.S., 17, Devonshire-place, Portland-place, W. VP 2. C, S 2, SM, CFC 7. *Treasurer; Chairman, House and Finance Committee*.
1892. GORDON, ROBERT JOHN, M.B., Kwangchengtaii Newchwang, North China.
1878. *GOULD, ALFRED PEARCE, M.S., 10, Queen Anne-street, W. s 2, c 3, o.
1876. GOWERS, WILLIAM RICHARD, M.D., F.R.S., 50, Queen Anne-street, W.
VP, C, SM, LL. FM. 1893.
1874. GOWLLAND, PETER YEAMES, F.R.C.S., 82, Gloucester-terrace, Hyde-park, W.
1887. GRANT, JAMES EDWARD RONEY, 2, Charing Cross-chambers, Duke-street, Adelphi, W.C.
1881. GREEN, THOMAS HENRY, M.D., 74, Wimpole-street, W. c 2. VP.
1868. GREGSON, GEORGE, M.R.C.S., 63, Harley-street.
1886. GREVES, EDWIN HYLIA, M.D., Rodney House, Bournemouth.
1873. GRIEVE, the Hon. ROBERT, M.D., C.M.G., British Guiana.
1884. GRIFFITH, DAVID CHARLES BALLINGER, M.R.C.P. Edin., Huntworth, Bedford.
1875. GRIFFITH, G. DE GORREQUER, M.R.C.S., 34, St. George's-square, S.W.
1885. GRIFFITHS, CHARLES THOMAS, L.R.C.P., 206, Lozells-road, Birmingham.
1884. GRIFFITHS, HERBERT TYRRELL, M.B., 5, Kensington-square, W.
1880. GRISTOCK, WILLIAM, M.D. Lond., 6, Finchley-road, N.W.
1893. GUBB, ALFRED SAMUEL, M.D. Paris, 29, Gower-street, W.C.
1891. GUTHRIE, LEONARD G., M.D., 15, Upper Berkeley-street, W.
1886. HABERSHON, S. HERBERT, M.D., 70, Brook-street, Grosvenor-square, W.
1891. HADLEY, WILFRED J., M.B., 11, Wimpole-street, W.
1887. HAIG, ALEXANDER, M.B., 7, Brook-street, W.
1884. HAIRSINE, HUDSON, Roose House, Upper Tooting, S.W.
1881. HALL, CHARLES ROSS, M.R.C.S., Hatfield, Herts.

1874. *HALL, FRANCIS DE HAVILLAND, M.D., 47, Wimpole-street, W. vp 2.
c 5, s 2, SM. *Councillor*.
1885. HALPIN, RICHARD FREDERICH BESTALL, Arklow, co. Wicklow, Ireland.
1881. HAMES, GEORGE HENRY, F.R.C.S., 29, Hertford-street, Mayfair, W.
1892. HAMILTON, JOHN BUTLER, M.D., Surgeon-Colonel.
1879. HAMILTON, SETON GUTHRIE, Surgeon-Captain.
1891. HANDFIELD-JONES, MONTAGU, M.D., 35, Cavendish-square, W.
1850. *HARE, CHARLES JOHN, M.D., *Honorary Fellow (q.v.)*. *Trustee*.
1888. HARE, HOBART AMORY, 222, South Fifteenth-street, Philadelphia.
FM. 1888.
1891. HAROLD, JOHN PATRICK, M.R.C.S., 91, Harley-street, W.
1882. HARPER, GERALD SAMUEL, M.B., 40, Curzon-street, Mayfair, W. c.
1871. HARRIS, CHARLES JAMES, M.R.C.S., 4, Kilburn Priory, N.W.
1895. HARRISON, CHARLES JAMES, M.D., Rossetti-mansions, Chelsea, S.W.
1871. HARRISON, REGINALD, F.R.C.S., 6, Lower Berkeley-street, Portman-square. vp 2, LL, c 1.
1883. *HARTRIDGE, GUSTAVUS, F.R.C.S., 65, Green-street, Grosvenor-square, W.
1882. HARVEY, JOHN STEPHENSON SELWYN, M.D., 1, Astwood-road, Cromwell-road, S.W.
1882. HASLAM, WILLIAM FREDERICK, F.R.C.S., 24, York-road, Edgbaston, Birmingham. c 3.
1852. *HAWARD, EDWIN, M.D., 34A, Gloucester-place, W.
1883. HAWKEN, CHARLES ST. AUBYN, Wadeford, Chard, Somerset.
1889. HAWKINS, FRANCIS HENRY, M.B., 26, Portland-place, Reading.
1890. HEBB, FREDERICK THEODORE, M.R.C.S., 98, Oakley-street, Chelsea-embankment, S.W.
1891. HENSMAN, FRANK, M.R.C.S., Surgeon-Major.
1883. HERMAN, GEORGE ERNEST, M.B., 20, Harley-street, W.
1879. HERON, GEORGE ALLAN, M.D., 57, Harley-street, Cavendish-square, W.
c 3.
1886. HERRINGHAM, WILMOT PARKER, M.B., 13, Upper Wimpole-street, W.
1883. HERSCHELL, GEORGE A., M.D., 25, Queen Anne-street, W.
1883. HEWITT, FREDERICK WILLIAM, M.D., 10, George-street, Hanover-square, W. c.
1876. HEYCOCK, FRANCIS RAWORTH, C.M., 26, Upper Wimpole-street, W.
1872. HICKS, JOHN BRAXTON, M.D., F.R.S., 34, George-street, Hanover-square. c.
1895. HILL, ERNEST, M.R.C.S., Western Hospital, Fulham, S.W.
1892. HILL, WILLIAM, M.D., 24, Wimpole-street, W.
1873. HOBSON, WILLIAM HENRY, M.R.C.S., Great Berkhamstead, Herts.
1895. HODGSON, GEORGE GOODFELLOW, M.R.C.S., Devonshire House, Bootle, Liverpool.
1879. HOGG, ARTHUR JOHN, M.R.C.S., Leslie Lodge, Haven-green, Ealing, W.
1892. HOGG, FREDERICK STAPLETON D., M.R.C.S. (address uncommunicated).
1884. HOLLAND, CHARLES EDWARD, M.B., 44, Warwick-road, Maida-vale, W.
1888. HOLM, JOHN, F.R.C.S. Edin., 13, Stratford-place, W.

1868. HOLMAN, CONSTANTINE, M.D., 26, Gloucester-place, Portman-square, W. c 4.
1881. HOOD, DONALD WILLIAM CHARLES, M.D., 43, Green-street, W. c 2.
1893. HORROCKS, HERBERT, M.D., 41, Parkfield-road, Sefton Park, Liverpool.
1883. *HOVELL, T. MARK, F.R.C.S. Edin., 105, Harley-street, W.
1886. HUDDART, CUTHBERT HENRY COOKE, M.B., Shoyswell Manor, Etching-ham, Sussex.
1885. HUDSON, CHARLES ELLIOTT LEOPOLD BARTON, F.R.C.S., 16, Harley-street, W.
1890. HUGHES, EDGAR, F.R.C.S., 91, Onslow-gardens, South Kensington, S.W.
1864. HUME, FREDERICK HENRY, M.D., 53, Devonshire-street, Islington, N.
1884. HUNTER, Sir GUYER, M.D., 21, Norfolk-crescent, Hyde Park, W.
1889. HUNTER, WILLIAM, M.D., 54, Harley-street, W.
1881. HUTCHINSON, JONATHAN, F.R.C.S., F.R.S., 15, Cavendish-square. P, LL, c 5, o.
1892. HUTCHINSON, JONATHAN, Jun., F.R.C.S., 1, Park-crescent, Portland-place, W.
1875. HUTCHINSON, SAMUEL JOHN, M.R.C.S., 64, Brook-street, W.
1889. I'ANSON, WILLIAM ANDREW, Denton Hall, Newcastle-on-Tyne.
1891. ISAAC, GEORGE WASHINGTON, M.B., 75, Gower-street, W.C.
1884. *JACKSON, FREDERICK WILLIAM, M.D., Yorkgate House, Broadstairs.
1885. JACKSON, JAMES, M.R.C.S., 15, Huntingdon-street, Barnsbury, N.
1868. JACKSON, JOHN HUGHLINGS, M.D., F.R.S., 3, Manchester-square, W. P, VP, O, c 5.
1874. JAGIELSKI, VICTOR APOLLINARIS, M.D., 54, York-terrace, Regent's Park, N.W.
1887. JAMISON, ARTHUR ANDREW, M.D., 18, Lowndes-street, Belgrave-square, S.W.
1884. JENNINGS, CHARLES EGERTON, M.D., 48, Seymour-street, W.
1886. JERVIS, ARTHUR, M.R.C.S., 52, York-street, Portman-square, W.
1883. JESSOP, WALTER HAMILTON, F.R.C.S., 73, Harley-street, W.
1893. JOHNSTON, GEORGE FRANCIS, M.D., 6, Manchester-square, W.
1886. JOHNSTON, JAMES, M.D., 83, King William-street, E.C.
1893. JOLL, BOYD BURNETT, M.B., 21, Great Russell-mansions, British Museum, W.C.
1888. JONES, ARTHUR HENRY, M.D., 45, Sheep-street, Northampton.
1893. JONES, HENRY LEWIS, M.D., 9, Upper Wimpole-street, W.
1890. JONES, H. MACNAUGHTON, M.D., 141, Harley-street, Cavendish-square, W.
1888. JONES, JOHN TALFOURD, M.B., Rosebank, South-terrace, Eastbourne, Sussex.
1892. *JONES, ROBERT, F.R.C.S., 11, Nelson-street, Liverpool.

1881. JONES, THOMAS WILLIAM CARMALT, F.R.C.S. Edin., 6, Westbourne-street, Hyde Park, W.
1893. JOULE, JOHN SAMUEL, M.D., 32, Maida-hill West, W.
1877. JULER, HENRY EDWARD, F.R.C.S., 23, Cavendish-square, W.
1889. KAUFFMANN, OTTO JACKSON, M.D., 22, Broad-street, Birmingham.
1891. KEEGAN, DENIS FRANCIS, M.D., Brigade Surgeon-Lieutenant-Colonel, East India United Service Club, St. James's-square, S.W.
1884. KEETLEY, CHARLES BELL, F.R.C.S., 56, Grosvenor-street, W. c 3.
1892. KEIFFENHEIM-TRUBRIDGE, LUIGI W. A., M.D., The Hoo, Rochester.
1847. *KELLOCK, WILLIAM BERRY, M.D., 94, Stamford-hill, N.
1890. KELLY, AUGUSTIN BERNARD, M.R.C.S., 82, Park-street, Grosvenor-square, W.
1891. KELSON, WILLIAM HENRY, M.D., 46, Watling-street, E.C.
1883. KEMP, JOHN ROBERT, M.R.C.S., 101, Jermyn-street, S.W.
1890. KER, HUGH RICHARD, F.R.C.S. Edin., Tintern, 2, Balham Hill, S.W.
1884. KERR, NORMAN, M.D., 42, Grove-road, N.W. *Councillor*.
1881. KESER, JEAN SAMUEL, M.D., 11, Harley-street, W. c 2, § 3.
1876. KEY, AUGUSTUS COOPER, M.D., 30, Wilton-place, S.W. c 2.
1886. KIDD, PERCY, M.D., 60, Brook-street, W. c 2.
1895. KING, ARTHUR, M.B., Station-road, Watford, Herts.
1889. KIRKHAM, FREDERICK WILLIAM, Downham Market, Norfolk.
1883. KNAPTON, GEORGE, Craven House, Moss-lane, Manchester.
1875. KNOX, JOHN, M.D., Bethnal Green Infirmary, E.
1889. LAKE, RICHARD, F.R.C.S., 19, Harley-street, W.
1868. LAKE, WILLIAM CHARLES, M.D., Teignmouth, Devon.
1872. LANGDON-DOWN, JOHN L. H., M.D., J.P., 81, Harley-street, W. v.p., LL.
1881. LANGTON, JOHN, F.R.C.S., 62, Harley-street, W. c 2.
1882. LARKIN, F. COLET, M.B., *Travelling*.
1890. LAW, EDWARD, M.D. Edin., 35, Harley-street, W.
1890. LAWRIE, EDWARD, M.B. Edin., Surgeon-Lieutenant-Colonel, Bengal Army, The Residency, Hyderabad.
1858. LAWSON, GEORGE, F.R.C.S., 12, Harley-street, W. vp 2, c 3.
1891. LAZARUS-BARLOW, WALTER SYDNEY, M.B., The Acacias, Chesterton, Cambridge.
1893. LEE, E. SAMUEL, M.D., 31, Pevensey-road, St. Leonards-on-Sea.
1887. LEGGATT, CHARLES ASHLEY SCOTT, M.D., 2, Walton-place, S.W.
1894. LENDON, EDWIN HARDING, M.R.C.S., 8, Norland-place, Holland-park, W.
1886. LEWERS, ARTHUR HAMILTON NICHOLSON, M.D. Lond., 60, Wimpole-street, W.
1895. LEWIS, ERNEST WOOL, M.R.C.S., 12, King-street, Hammersmith, W.
1867. LICHTENBERG, GEORGE, M.D., 47, Finsbury-square. c 2.
1893. LIGHT, EDWIN MELLOR, M.B., 2, Wilton-place, S.W.

1878. LISTER, Sir JOSEPH, Bart., D.C.L., LL.D., F.R.C.S., F.R.S., 12, Park-crescent, Portland-place. o.
1890. LITHGOW, ROBERT ALEXANDER DOUGLAS, M.D., LL.D., 27A, Lowndes-street, S.W.
1889. LITTLE, ERNEST MUIRHEAD, F.R.C.S., 40, Seymour-street, Portman-square, W.
1889. LITTLE, FLETCHER, M.D., 32, Harley-street, W.
1878. LOCKWOOD, CHARLES BARRETT, F.R.C.S., 19, Upper Berkeley-street, W. c, s 2. *Vice-President.*
1873. LOE, JAMES SCARBOROUGH, 26, Woodhouse-lane, Leeds.
1881. LORIMER, G., M.D., 9, Terrace-road, Buxton, Derbyshire.
1868. LOWE, JOHN, M.D., J.P., 4, Gloucester-place, Portman-square, W. c 3.
1868. *LUND, EDWARD, F.R.C.S., 22, St. John's-street, Manchester. o, c 3.
1889. LUNN, HENRY SIMPSON, M.D., 5, Endsleigh-gardens, N.W.
1889. LUSH, PERCY, M.B., 4, Maresfield-gardens, Hampstead, N.W.
1884. MACBRYAN, HENRY CRAWFORD, Kingsdown House, Box, Wilts.
1894. McCANN, FREDERICK JOHN, M.B., 47, Welbeck-street, W.
1885. McCONNEL, HENRY WILSON, M.B., Great Ryburgh, Fakenham, Norfolk.
1871. MACCORMAC, Sir WILLIAM, F.R.C.S., 13, Harley-street, W. p, vp, § 2, c 4, o.
1885. MACGEAGH, THOMAS EDWIN FOSTER, M.D., 23, New Cavendish-street, W.
1873. McHARDY, MALCOLM MACDONALD, F.R.C.S. Edin., 5, Savile-row, W.
1882. MACKELLAR, ALEXANDER OBERLIN, F.R.C.S., 79, Wimpole-street, W.
1894. MACKENZIE, HECTOR WILLIAM GAVIN, M.D., 59, Welbeck-street, W.
1880. MACKENZIE, STEPHEN, M.D., 18, Cavendish-square, W. vp 2, c 4, LL.
1881. MACLAGAN, THOMAS JOHN, M.D., 9, Cadogan-place, S.W. c 3.
1861. MACLAREN, ALEXANDER CONNELL, 60, Harley-street, W.
1891. MACLEAN, ALLAN, 10, Mitre-court Chambers, Temple, E.C.
1887. MACREADY, JONATHAN FOSTER CHRISTIAN HORACE, F.R.C.S., 51, Queen Anne-street, W.
1883. MADDICK, EDMUND DISTIN, F.R.C.S. Edin., 2, Chandos-street, Cavendish-square, W.
1885. MAGUIRE, ROBERT, M.D., 4, Seymour-street, W. c 2.
1890. MALCOLM, JOHN DAVID, F.R.C.S. Edin., 13, Portman-street, Portman-square, W.
1893. MALCOLM, WILLIAM A., M.B., Oak House, 421, Holloway-road, N.
1887. MANTLE, ALFRED, M.D., Savile-place, Halifax.
1888. MAPOTHER, EDWARD DILLON, M.D., 32, Cavendish-square, W. c 2. *Councillor.*
1891. MARSH, HOWARD, F.R.C.S., 30, Bruton-street, W.
1892. MARSHALL, ARTHUR LUMSDEN, M.B., 56, Rectory-road, N.
1873. MARSHALL, EDWARD, M.R.C.S., Mitcham, Surrey.
1869. MARSHALL, WILLIAM, M.D., Torrieburn, Barnes, S.W. c.

1864. MARSHALL, WILLIAM GURSLAVE, F.R.C.S., 72, Bromfelde-road, Clapham, S.W.
1889. MARTIN, JOHN MICHAEL HARDING, M.D., Arnheim, Blackburn, Lancashire.
1890. MARTIN, SIDNEY, M.D., F.R.S., 10, Mansfield-street, W.
1893. MASON, GEORGE ARMSTRONG, M.B., 45, George-street, Portman-square, W.
1884. MATHESON, FARQUHAR, M.B., 11, Soho-square, W.
1891. MAUDE, ARTHUR, M.R.C.S., Winterton House, Westerham, Kent.
1892. MAY, CHICHESTER GOULD, M.D., 26, Walton-street, Pont-street, S.W.
1891. MAY, WILLIAM PAGE, M.D., 34, Welbeck-street, W.
1884. MEREDITH, WILLIAM APPLETON, C.M., 21, Manchester-square, W. c.
1864. MIDDLEMIST, ROBERT PERCY, M.R.C.S., 6, Devonport-street, Hyde Park, W. c 4.
1883. MOORE, THOMAS, F.R.C.S., 6, Lee-terrace, Blackheath, S.E.
1883. MORGAN, JOHN HAMMOND, F.R.C.S., 68, Grosvenor-street, W. s 2, c.
1893. MORISON, ALEXANDER, M.D., 14, Upper Berkeley-street, W.
1871. MORLEY, ALEXANDER, 42, Albemarle-street, W.
1881. MORRIS, HENRY, F.R.C.S., 8, Cavendish-square, W. c.
1878. MORRIS, MALCOLM ALEXANDER, F.R.C.S. Edin., 8, Harley-street, W. c 2.
1882. MORTON, ANDREW STANFORD, F.R.C.S., 26, Weymouth-street, Portland-place, W.
1884. *MOULLIN, CHARLES WILLIAM MANSELL, F.R.C.S., 69, Wimpole-street, W.
1893. MURPHY, GEORGE WYNDHAM, M.B., J.P., 228, Gloucester-terrace, Hyde Park, W.
1886. MURPHY, JAMES, M.D., Holly House, Sunderland.
1894. MURRAY, CHARLES STORMONT, L.R.C.S. Edin., 85, Gloucester-place, W.
1884. MURRAY, FRED., M.B., Durbanville, Cape Colony, South Africa.
1890. MURRAY, GEORGE, M.R.C.S., 34, Wimpole-street, Cavendish-square, W.
1886. MURRAY, HUBERT MONTAGUE, M.D., 27, Savile-row, W. c 2. *Councillor.*
1879. MURRELL, WILLIAM, M.D., 17, Welbeck-street, W.
1893. NAPIER, ALEXANDER DISNEY LEITH, M.D., 67, Grosvenor-street, W.
1894. NAUMANN, J. C. FRANCIS, M.D., 125, Gower-street, W.C.
1877. NESBITT, DAWSON, M.D., 1, Norfolk-square, Hyde Park, W.
1876. NEWHAM, JAMES, 80, Gloucester-place, W.
1889. *NIAS, J. BALDWIN, M.D., 40, Brook-street, Grosvenor-square, W.
1880. NIX, EDWARD JAMES, M.D., 11, Weymouth-street, W. c. *Councillor.*
1887. OAKLEY, ADAM ROBERT HAMILTON, L.R.C.P., Treath, Hornchurch, Essex.
1894. O'CALLAGHAN, ROBERT, F.R.C.S.I., 137, Harley-street, W.
1885. OGILVIE, LESLIE, M.B., 46, Welbeck-street, W.
1884. OGLE, CHARLES JOHN, 1, Cavendish-place, W.

1884. OLIVER, GEORGE, M.D., West End Park, Harrogate.
1892. OPENSHAW, THOMAS HORROCKS, F.R.C.S., 16, Wimpole-street, W.
1875. ORD, WILLIAM MILLER, M.D., 37, Upper Brook-street, W. p, o, c 4.
1892. ORD, WILLIAM WALLIS, M.D., 2, Queen-street, Mayfair, W.
1887. ORMEROD, JOSEPH ARDERNE, M.D., 25, Upper Wimpole-street, W. c.
1889. ORTON, GEORGE HUNT, M.B., 1A, Campden Hill-road, Kensington, W.
1884. ORWIN, ARTHUR WIGELSWORTH, M.D., 15, Weymouth-street, Portland-place, W.
1894. OSBORN, SAMUEL, F.R.C.S., J.P., Maisonnette, Datchet, near Windsor.
1880. OSWALD, JAMES WADDELL JEFFREYS, M.D., 245, Kennington-road, S.E.
Councillor.
1883. OWEN, CHARLES J. RAYLEY, 14, Devonshire-terrace, Hyde Park, W.
1878. *OWEN, EDMUND, F.R.C.S., 64, Great Cumberland-place, W. vp 2, c 3,
s 2, SM, LL. *Trustee.*
1881. OWEN, ISAMBARD, M.D., 40, Curzon-street, Mayfair, W. s 2, c 4.
1886. PAGET, STEPHEN, F.R.C.S., 57, Wimpole-street, W. c 2.
1880. PALMER, FREDERICK STEPHEN, M.D., Compton Lodge, East Sheen, S.W.
1882. PALMER, WILLIAM PITT, M.B., 17, Belgrave-terrace, Torquay.
1877. *PARAMORE, RICHARD, M.D., 2, Gordon-square, W.C.
1867. PARKINSON, GEORGE, 50, Brook-street, Grosvenor-square, W.
1881. PARROTT, EDWARD JOHN, M.R.C.S., The Thorn, Hayes, Middlesex.
1871. PARSONS, FRANCIS HENRY, M.D., "The Hurst," West Worthing.
1885. PASTEUR, WILLIAM, M.D., 4, Chandos-street, Cavendish-square, W.
s 2, c. *Councillor.*
1872. PATTEN, CHARLES ARTHUR, M.R.C.S., Marpool House, Ealing, W.
1891. PATTERSON, CHARLES SUMNER, M.B., 40, Highbury-place, N.
1890. PATTISON, EDWARD SETON, M.R.C.S., Granville House, Fulham-park,
S.W.
1861. PAUL, JOHN HAYBALL, M.D., Camberwell House, Camberwell, S.E. c 6.
1854. *PAVY, FREDERICK WILLIAM, M.D., F.R.S., 35, Grosvenor-street, W.
VP, LL, C.
1881. *PEACEY, WILLIAM, M.D., 11, Breakspears-road, Brockley, S.E.
1883. PECK, EDWARD GEORGE, M.A., Queensbury, Bradford, Yorks.
1871. PEDLER, GEORGE HENRY, M.R.C.S., 6, Trevor-terrace, Knightsbridge,
S.W.
1883. PERIGAL, ARTHUR, M.D., New Barnet, Herts.
1894. PHILLIPPS, WILLIAM ALFRED, M.D., 13, John-street, Berkeley-square,
W.
1876. PHILLIPS, CHARLES DOUGLAS FERGUSON, M.D., F.R.S.E., 10, Henri-
etta-street, Cavendish-square, W. c 3.
1873. PHILLIPS, GEORGE RICHARD TURNER, M.R.C.S., 24, Palace-court,
Bayswater-hill, W. c 2.
1885. PHILLIPS, JOHN, M.D., 71, Grosvenor-street, W.
1883. PHILLIPS, SIDNEY PHILIP, M.D. Lond., 62, Upper Berkeley-street,
Portman-square, W.

1878. PHILLIPS, SUTHERLAND REES, M.D., St. Ann's Heath, Virginia Water, Berks.
1883. PICK, THOMAS PICKERING, F.R.C.S., 18, Portman-street, W. c 2.
1884. PIESSE, C. H., M.R.C.S., 2, New Bond-street, W.
1883. PITTS, BERNARD, F.R.C.S., 109, Harley-street, Cavendish-square. c 5, s 2.
1890. POPE, HARRY CAMPBELL, M.D. Lond., 280, Goldhawk-road, Shepherd's Bush, W.
1873. PORT, HEINRICH, M.D., 48, Finsbury-square, E.C. *Hon. Sec. Foreign Correspondence.*
1850. *POTTS, WILLIAM, F.R.C.S., 2, Albert-terrace, Regent's Park, N.W. c 3.
1871. POWELL, RICHARD DOUGLAS, M.D., 62, Wimpole-street, W. p, ^uvp, c 5, o.
1891. POWELL, WILLIAM WYNDHAM, F.R.C.S., 16, Old Burlington-street, W.
1891. PRESTON, THEODORE JULIAN, M.R.C.S., Fleet Surgeon, Royal Navy, 238, Portsdown-road, Maida Vale, W.
1891. *PRICKETT, MARMADUKE, M.D., 27, Oxford-square, W.
1885. PRINGLE, JOHN JAMES, M.B., 23, Lower Seymour-street, W.
1889. PRITCHARD, OWEN, M.D., 37, Southwick-street, Hyde Park, W.
1873. PURCELL, FERDINAND ALBERT, M.D., 7, Manchester-square, W.
1870. QUAIN, Sir RICHARD, Bart., M.D., F.R.S., 67, Harley-street, W. vp, c 3.
1883. RALFE, CHARLES HENRY, M.D., 26, Queen Anne-street, W. c. *Councillor.*
1892. RAMSAY, JAMES, M.D., High Peter-gate, York.
1861. RAMSKILL, JABEZ SPENCE, M.D., 5, St. Helen's-place, E.C.
1894. RANKIN, GUTHRIE, M.D., 23, Jury-street, Warwick.
1881. RANKING, JOHN EBENEZER, M.D., Hanover House, Tunbridge Wells.
1894. RAYNER, HERBERT EDWARD, F.R.C.S., 68, Porchester-terrace, Hyde Park, W.
1859. *RAYNER, JOHN, M.R.C.P. Edin., Swaledale House, Highbury-quadrant, N.
1850. *READ, REGINALD, F.R.C.P. Edin., 4, Oakfield-terrace, Uxbridge-road, W.
1879. REEVES, HENRY ALBERT, F.R.C.S. Edin., 7, Grosvenor-street, W.
1890. REID, JOHN, M.B., Clanmurray, Dromore, co. Down.
1882. REID, THOMAS WHITEHEAD, F.R.C.P. Edin., 34, St. George's-place, Canterbury.
1887. REMFRY, LEONARD, M.D., 60, Great Crmberland-place, Hyde Park, W.
1872. REYNOLDS, Sir JOHN RUSSELL, Bart., M.D., F.R.S., 38, Grosvenor-street, W. c 3.
1872. RICHARDS, JOSEPH PEEKE, M.R.C.S., 6, Freeland-road, Ealing, W. c 3.

1850. *RICHARDSON, Sir BENJAMIN WARD, M.D., LL.D., F.R.S., 25, Manchester-square, W. P, VP, LL, c 5, O, FM 1854.
1868. *ROBERTS, DAVID LLOYD, M.D., F.R.S.E., 11, St. John's-street, Manchester.
1857. ROBERTS, DAVID WATKIN, M.D., 56, Manchester-street, W.
1885. ROBERTS, EDWARD COLERIDGE, M.R.C.S., Southgate, N.
1874. ROBERTS, FREDERICK THOMAS, M.D., 102, Harley-street, W. VP 2, LL. *Councillor*.
1889. ROBERTS, Sir WILLIAM, M.D., F.R.S., 8, Manchester-square, W. C.
1873. ROBERTSON, WILLIAM HENRY, M.D., J.P., 6, The Square, Buxton, Derbyshire.
1884. ROBINSON, ARTHUR HENRY, M.D., The Infirmary, Bancroft-road, N.E.
1847. *ROGERS, WILLIAM RICHARD, M.D., 26, Upper Baker-street, N.W. VP, c 6.
1890. ROOT, ARTHUR GUERNSEY, M.D., 46, Eagle-street, Albany, New York, U.S.A.
1886. ROSE, ROBERT DUNCAN, F.R.C.S., St. Leonard's-place, York.
1874. ROSE, WILLIAM, F.R.C.S., 17, Harley-street. C 2, LL, VP 2.
1883. *ROSS, DANIEL McCLURE, M.D., Cedar Lodge, Littledown-road, Bournemouth.
1888. *ROTH, BERNARD, F.R.C.S., J.P., 29, Queen Anne-street, W.
1893. ROUGHTON, WALTER, F.R.C.S., Cranborne House, New Barnet, Herts.
1876. ROUTH, ALFRED CURTIS, 33, Marina, St. Leonards-on-Sea.
1881. ROUTH, AMAND, M.D., 14A, Manchester-square, W. C 2. *Honorary Secretary*.
1848. *ROUTH, CHARLES HENRY FELIX, M.D., 52, Montagu-square, W. P, VP 2, O, LL, S 4, C 6, SM. *Trustee*.
1891. RUFFER, MARC ARMAND, M.D., 5, York-terrace, Regent's Park, N.W.
1887. RUSHWORTH, FRANK, M.D., "Langdale," Goldhurst-terrace, South Hampstead, N.W.
1889. RUSSELL, JAMES SAMUEL RISIEN, M.B., 4, Queen Anne-street, W.
1886. RUTHERFOORD, HENRY TROTTER, M.D., Salisbury House, Taunton.
1879. RYLEY, JAMES BERESFORD, M.D., 54A, Welbeck-street, W.
1887. SAINSBURY, HARRINGTON, M.D., 63, Welbeck-street, W.
1884. SALTER, THOMAS KNIGHT, M.R.C.S.
1863. *SANSOM, ARTHUR ERNEST, M.D., 84, Harley-street, W. VP, S 2, C 5, SM, §, LL, O.
1895. SANSOM, CHARLES LANE, F.R.C.S. Edin., 8, Wilton-street, Grosvenor-place, S.W.
1886. SAVAGE, GEORGE HENRY, M.D., 3, Henrietta-street, W. C.
1886. SAVILL, THOMAS DIXON, M.D., 12, Upper Berkeley-street, W.
1873. SEDGWICK, JAMES, M.D., Boroughbridge, Yorkshire.
1868. SEDGWICK, LEONARD WILLIAM, M.D., 48, Gloucester-terrace, Hyde Park, W. VP 2, C 4, § 3.

1883. SEMON, FELIX, M.D., 39, Wimpole-street, W. §, c.
 1887. SERVAIS, LEOPOLD, M.D., Antwerp, Belgium.
 1889. SHAW, GEORGE, M.B., 1, The Drive, West Brighton.
 1894. SHAW, HARRY CHARLES COSTELLO, M.R.C.S., Westgate, Chislett-road, West Hampstead, N.W.
 1884. SHAW, JOHN, M.D., Burlington House, Willoughby-road, Hampstead, N.W.
 1886. SHEILD, ARTHUR MARMADUKE, F.R.C.S., 4, Cavendish-place, W. c 2, s 2.
 1890. SHEPPARD, WILLIAM JOHN, M.D., 211, Upper Richmond-road, Putney, S.W.
 1871. SHETTLÉ, RICHARD CHARLES, M.D., 73, London-street, Reading.
 1881. SHIPTON, ARTHUR, F.R.C.S. Edin., Buxton, Derbyshire.
 1878. SHIPTON, WILLIAM PARKER, M.R.C.S., J.P., Buxton, Derbyshire.
 1885. SHOEMAKER, JOHN V., M.D., 1031, Walnut-street, Philadelphia, U.S.A.
 1894. SHUTTLEWORTH, GEORGE EDWARD, M.D., Ancaster House, Richmond, Surrey.
 1890. SILK, JOHN FREDERICK WILLIAM, M.D., 29, Weymouth-street, W.
 1890. SIMON, ROBERT M., M.D., 27, Newhall-street, Birmingham.
 1884. SIMPSON, JAMES HERBERT, M.D., The Crescent, Rugby, Warwickshire.
 1884. SINCLAIR, JOHN, M.R.C.P., General Post Office, St. Martin's-le-Grand, E.C.
 1891. SISLEY, RICHARD, M.D., 11, York-street, Portman-square, W.
 1883. *SKERRITT, EDWARD MARKHAM, M.D., Richmond Hill, Clifton.
 1886. SLATER, CHARLES, M.B., 16, Northwick-terrace, St. John's Wood, N.W.
 1862. SLIGHT, GEORGE, M.D., 14, Old Burlington-street, W. c 2.
 1889. SMALE, MORTON, M.R.C.S., 22A, Cavendish-square W.
 1845. *SMILES, WILLIAM, M.D., St. Martha's Lodge, Guildford. vp 2, s 4, c 9, SM.
 1893. SMITH, FREDERICK AUGUSTUS ALFRED, M.D., Portland House, Cheltenham.
 1887. SMITH, FREDERICK JOHN, M.D., 4, Christopher-street, Finsbury-square, E.C.
 1882. SMITH, HERBERT URMSON, Oudtshoorn, Cape of Good Hope, South Africa.
 1873. SMITH, HEYWOOD, M.D., 18, Harley-street, W. c 3.
 1880. SMITH, NOBLE, F.R.C.S. Edin., 24, Queen Anne-street, W.
 1891. SMITH, SOLOMON CHARLES, M.D., 4, Portman-mansions, Baker-street, W.
 1877. SMITH, SYDNEY LLOYD, M.R.C.S., 25, Argyle-square, King's Cross, W.C.
 1882. SMITH, THOMAS FREDERICK HUGH, F.R.C.S., Farningham, Kent.
 1873. *SMITH, THOMAS GILBART, M.D., 68, Harley-street, W. vp 2, s 2, SM, c 4. *Trustee.*

1872. SMITH, WALTER, M.R.C.P. Edin., Orleans House, 60, Regent's Park-road, N.W.
1874. SMYTH, WILLIAM WOODS, Maidstone.
1894. SNAPE, ERNEST ALFRED, M.D., 41, Welbeck-street, W.
1894. SNOW, HERBERT, M.D., 6, Gloucester-place, W.
1893. SPENCER, HERBERT RITCHIE, M.D., 10, Mansfield-street, W.
1888. SPENCER, JOHN, Lyons-terrace, Hetton, Durham.
1869. SPENDER, JOHN KENT, M.D., 17, Circus, Bath. FM 1874.
1887. SPICER, SCANES, M.D., 28, Welbeck-street, W.
1883. SPITTA, EDMUND JOHNSON, M.R.C.S., Ivy House, Clapham Common, S.W.
1864. SQUIRE, ALEXANDER JOHN BALMANNO, M.B., 24, Weymouth-street, Portland-place.
1881. STARTIN, JAMES, M.R.C.S., 15, Harley-street, W.
1892. STAVELEY, WILLIAM H. C., F.R.C.S., 13, South Eaton-place, S.W.
1884. STEPHENS, WILLIAM JOHN, 9, Old Steyne, Brighton.
1892. STEWART, HASTINGS, M.R.C.S., 13A, Charles-street, St. James's, S.W.
1882. STEWART, JAMES, F.R.C.P. Edin., Dunmurry, Sneyd-park, near Clifton.
1894. STEWART, KENNETH TREVOR, M.D., 29, Dover-street, Berkeley-square, W.
1891. STEWART, WILLIAM EDWARD, F.R.C.S. Edin., *Travelling*.
1883. STEWART, WILLIAM ROBERT HENRY, F.R.C.S. Edin., 42, Devonshire-street, Portland-place, W.
1884. STIVEN, EDWARD WINNAN FLEMING, M.D., Lincoln House, Harrow, Middlesex.
1885. STIVENS, B. H. LYNE, M.D., 107, Park-street, Grosvenor-square, W.
1848. *STOCKER, JOHN SHERWOOD, M.D., 2, Montagu-square, W. c 10, s 2.
1884. STOKER, GEORGE, M.R.C.S., J.P., 14, Hertford-street, Mayfair, W.
1892. STONHAM, CHARLES, F.R.C.S., 4, Harley-street, W.
1877. STOWERS, JAMES HERBERT, M.D., 41, Finsbury-square, E.C.
1873. STRANGE, WILLIAM HEATH, M.D., 5, Grosvenor-street, W. c 3.
1881. STURGE, WILLIAM ALLEN, M.D., Maison Malausséna, Boulevard Dubouché 29, Nice. SM.
1889. SUMPTER, WALTER JOHN ERNELY, M.R.C.S., Sheringham, Norfolk.
1892. SUNDERLAND, SEPTIMUS, M.D., 35, Bruton-street, W.
1876. *SUTHERLAND, HENRY, M.D., 6, Richmond-terrace, Whitehall, S.W.
1892. SUTTON, J. BLAND, F.R.C.S., 48, Queen Anne-street, W.
1892. SWIFT, WILLIAM JOHN CROPLEY, M.R.C.S., 4, Gordon-square, W.C.
1885. *SYERS, HENRY WALTER, M.D. Camb., 3, Devonshire-street, Portland-place, W.
1884. SYMONDS, HORATIO PERCY, F.R.C.S., 35, Beaumont-street, Oxford.
1893. SYMONDS, CHARTERS JAMES, F.R.C.S., 26, Weymouth-street, W.
1864. TAIT, EDWARD WILMSHURST, M.R.C.S., 48, Highbury-park, N.
1879. *TAIT, LAWSON, F.R.C.S., 7, The Crescent, Birmingham.
1875. TAMPLIN, CHARLES HARRIS, M.R.C.S., 17, Paragon, Ramsgate.

1882. TAYLOR, SEYMOUR, M.D., 16, Seymour-street, Portman-square, W. c 2.
1859. THOMPSON, EDMUND SYMES, M.D., 33, Cavendish-square, W. vp, o, s 3, c 3, sm.
1835. *THOMPSON, Sir HENRY, F.R.C.S., 35, Wimpole-street, W. vp., ll., c 4.
1873. THOMSON, JOHN ROBERTS, M.D., Monkchester, Bournemouth, Hants.
1894. THOMSON, ST. CLAIR, M.D., 28, Queen Anne-street, W.
1892. THORNTON, GEORGE, M.D., Fountain Hospital, Lower Tooting, S.W.
1876. THORNTON, JOHN KNOWSLEY, M.C., J.P., 49, Montagu-square, W. p, vp, c 3.
1867. THOROWGOOD, JOHN CHARLES, M.D., 61, Welbeck-street, W. ll, s 2, s.m, c 3, vp 2. *Vice-President.*
1856. THUDICHUM, JOHN LOUIS WILLIAM, M.D., 11, Pembroke-gardens, Kensington, W. vp, ll, o, c.
1884. THURSFIELD, THOMAS WILLIAM, M.D., J.P., Selwood, Beauchamp-square, Leamington.
1867. TIMMS, GODWIN WILLIAM, M.D., 9d, Cornwall Mansions, Clarence Gate, Regent's Park, N.W.
1865. TRAVERS, WILLIAM, M.D., 2, Phillimore-gardens, Kensington, W. c.
1884. *TREVES, FREDERICK, F.R.C.S., 6, Wimpole-street, W. c 2, ll, vp 2. *Councillor.*
1882. TUKE, CHARLES MOLESWORTH, Chiswick House, Chiswick.
1886. TUKE, THOMAS SEYMOUR, M.B. Oxon., Chiswick House, Chiswick.
1884. TURNER, GEORGE R., F.R.C.S., 49, Green-street, Grosvenor-square, W. c 2. *Honorary Secretary.*
1890. TWEED, EDWARD REGINALD, M.D., 55, Upper Brook-street, W.
1883. TWEEDY, JOHN, F.R.C.S., 100, Harley-street, W. *Councillor.*
1891. TYSON, WILLIAM JOSEPH, M.D., 10, Langhorne-gardens, Folkestone.
1887. *UNDERWOOD, EDWARD T., M.D., Fort Bombay, India.
1883. VENNING, EDGCOMBE, F.R.C.S., 30, Cadogan-place, S.W.
1874. VERLEY, REGINALD LOUIS, F.R.C.P. Edin., St. George's Club, Hanover-square, W.
1893. VOELCKER, ARTHUR FRANCIS, M.D., 31, Harley-street, W.
1892. WAGGETT, ERNEST BLECHYNDEN, M.B., 66, Park-street, Grosvenor-square, W.
1850. *WAGGETT, JOHN, M.D., Perivale, Bournemouth; and Union Club, S.W.
1884. WAKLEY, THOMAS, 5, Queen's-gate, S.W.
1850. *WAKLEY, THOMAS HENRY, F.R.C.S., 5, Queen's-gate, S.W.
1894. WALLIS, FREDERICK CHARLES, F.R.C.S., 26, Welbeck-street, W.
1880. WALSHAM, WILLIAM JOHNSON, F.R.C.S., 77, Harley-street, W. c.
1894. WARING, HOLBURT JACOB, F.R.C.S., 9, Upper Wimpole-street, W.

1881. WARNER, FRANCIS, M.D., 5, Prince of Wales-terrace, W.
1894. WATERHOUSE, HERBERT FURNIVALL, F.R.C.S., 81, Wimpole-street, W.
1883. WATERHOUSE, WILLIAM DAKIN, LL.D., 18, Woodchurch-road, West Hampstead, N.W.
1891. WATSON, W. SPENCER, F.R.C.S., 7, Henrietta-street, Cavendish-square, W.
1889. WAUGH, HENRY DUNN, M.D., 6, Sumner-place, Onslow-square, S.W.
1884. WEBB, F. ERNEST, M.R.C.S., 113, Maida-vale, W.
1889. WEBER, HERMANN, M.D., 10, Grosvenor-street, W.
1887. WEBSTER, HENRY WILLIAM, M.D., St. George's Infirmary, Fulham-road, S.W.
1888. *WELLS, JOHN ROBINSON, F.R.C.S., 4, Pierrepont-road, Acton, W. c 2.
1884. WEST, SAMUEL, M.D., 15, Wimpole-street, W. s 2, c 4, cfc.
1889. WETHERED, FRANK JOSEPH, M.D., 83, Harley-street, W.
1892. WHEATON, SAMUEL WALTON, M.D., 52, The Chase, Clapham Common, S.W.
1882. WHIPHAM, THOMAS T., M.D., 11, Grosvenor-street, W. sm, c.
1884. WHISTLER, WILLIAM MACNEILL, M.D., 17, Wimpole-street, W.
1889. WHITE, E. F., F.R.C.S., Westlands, 280, Upper Richmond-road, Putney, S.W.
1868. WHITE, JOSEPH, F.R.C.S. Edin., 6, Southwell Gardens, Kensington, S.W. *Councillor*.
1880. *WHITE, WILLIAM HENRY, M.D., 43, Weymouth-street, W. c 3.
1885. WHITE-COOPER, GEORGE OWEN, M.B., 5, Courtfield-road, S.W.
1883. WHITEHEAD, WALTER, F.R.C.S. Edin., F.R.S.E., 499, Oxford-road, Manchester. c.
1885. WHITLA, WILLIAM, M.D., 8, College-square North, Belfast, Ireland.
1877. WHITMORE, WILLIAM TICKLE, F.R.C.S. Edin., 7, Arlington-street, Piccadilly, W.
1872. WILLIAMS, CHARLES THEODORE, M.D., 2, Upper Brook-street, Grosvenor-square, W. p, vp 2, LL, s 2, sm, o, l 3, c 9.
1876. WILLIAMS, HENRY WILLIAM, M.D., Hillside, Guilsborough, Northampton.
1883. WILLIAMS, Sir JOHN, Bart., M.D., 63, Brook-street. c 3.
1883. WILLIS, ARTHUR KEITH, M.A. Oxon., Gascony House, West End-lane, N.W.
1881. WILLS, CALEB SHERA, C.B., Brigade Surgeon, Lunecliffe, Lancaster.
1873. WILLS, THOMAS MUNNS, F.R.C.S.I., J.P., 44, Merton-road, Bootle, Liverpool.
1893. WILLS, WILLIAM ALFRED, M.D., 23, Lower Seymour-street, W.
1892. WILSON, CLAUDE, M.D., Belmont, Tunbridge Wells.
1884. WINSLOW, H. FORBES, M.D., 14, York-place, Portman-square, W.
1873. WINSLOW, LYTTLETON STEWART FORBES, M.B., D.C.L., 33, Devonshire-street, W. c.
1876. WOAKES, EDWARD, M.D., 78, Harley-street, W.

1882. WOLFENDEN, RICHARD NORRIS, M.D., 35, Harley-street, W.
 1886. WOOD, T. OUTTERSON, M.D., 40, Margaret-street, Cavendish-square, W.
 c 3.
 1873. WOODHOUSE, ROBERT HALL, M.R.C.S., 1, Hanover-square, W.
 1889. WOOLFSON DE, LOUIS E. G., 26, St. John's-hill, Shrewsbury.
 1891. WOOLLETT, CHARLES JEROME, F.R.C.S., 35, Telfourd-avenue, Streat-
 ham-hill, S.W.
 1886. WORDSWORTH, WILLIAM JOHN, M.R.C.S., 13, St. John-street, Mans-
 field, Notts.
 1884. WYMAN, WILLIAM SANDERSON, M.D., Red Brae, Putney-hill, S.W.
 c 2.
 1891. YARR, MICHAEL THOMAS, Surgeon-Captain, Medical Staff, 4, Grafton-
 street, Piccadilly, W.
 1884. YEO, I. BURNEY, M.D., 44, Hertford-street, Mayfair, W.
 1884. YOUNGER, EDWARD GEORGE, M.D., 19, Mecklenburgh-square, W.C.

NON-SUBSCRIBING FELLOWS.

1868. BATEMAN, Sir FREDERIC, M.D., J.P., Upper-street, Giles-street, Norwich.
 1868. BEATTY, THOMAS CARLYLE, Seaham Harbour, Durham.
 1872. BELL, JOHN HOUGHAM, M.D., Ventnor, Isle of Wight.
 1868. BUCKLE, FLEETWOOD, M.D., Staff Surgeon R.N., Merton Lodge, South-
 sea.
 1868. CHILD, EDWIN, New Malden, Surrey.
 1870. CLOUSTON, THOMAS SMITH, M.D., Royal Asylum, Morningside,
 Edinburgh. FM 1870.
 1868. FLETCHER, THOMAS BELL ELCOCK, M.D., J.P., 8, Clarendon-crescent,
 Leamington.
 1863. FOLKER, WILLIAM HENRY, F.R.C.S., Hanley, Staffordshire.
 1869. FOSTER, Sir WALTER B., M.D., M.P., 14, Temple-row, Birmingham.
 1868. FOX, CHARLES HENRY, M.D., 32, Rutland-square, Edinburgh.
 1868. GAINÉ, CHARLES, 30, Gay-street, Bath.
 1871. GLYNN, THOMAS ROBINSON, M.D., 62, Rodney-street, Liverpool.
 1872. HARRIS, HENRY, LL.D., M.D., Redruth, Cornwall.
 1868. KNAGGS, SAMUEL, 2, Bradley-lane, Huddersfield.
 1869. LEES, CHARLES ALEXANDER, M.D., Dep. Inspector-General, R.N.
 1869. LIPSCOMB, JOHN THOMAS NICHOLSON, M.D., St. Albans, Herts.
 1859. MARSHALL, JAMES, M.D., Queen's-gate, Aberdeen.

- 1869. MATHEWS, ROBERT, Bickley, Kent.
- 1871. MAURICE, OLIVER CALLEY, 75, London-street, Reading.
- 1868. MCINTYRE, JOHN, M.D., LL.D., Odiham, Hants.
- 1868. NEVINS, JOHN BIRKBECK, M.D., 3, Abercromby-square, Liverpool.
- 1871. OGLE, WILLIAM, M.D., The Elms, Derby.
- 1869. PEMBERTON, OLIVER, F.R.C.S., J.P., 65, Temple-row, Birmingham.
- 1869. PHILIPSON, GEORGE HARE, D.C.L., M.D., J.P., 7, Eldon-square,
Newcastle-on-Tyne.
- 1869. PRICE, WILLIAM PRESTON, M.D., 1, Ethelbert-crescent, Margate.
- 1869. PRIOR, CHARLES EDWARD, M.D., 4, Goldington-road, Bedford.
- 1869. ROBERTS, BRANSBY, M.D., Ash Grove, Eastbourne.
- 1871. SLOMAN, SAMUEL GEORGE, Farnham.
- 1869. STEAR, HENRY, Saffron Walden, Essex.
- 1869. TAYLOR, CHARLES BELL, M.D., 9, Park-row, Nottingham.
- 1869. WALKER, JOHN SWIFT, M.D., Hanley, Staffs.
- 1869. WEBSTER, FREDERICK RICHARD, St. Albans, Herts.
- 1868. WIBLIN, JOHN, F.R.C.S., Wimborne, Dorset.

. As it is very desirable that the foregoing Lists should be kept as accurately as possible, Fellows are requested to send notice of any corrections that may be necessary to the Secretaries or to the Registrar.

GENERAL MEETING.

May 13th, 1895.

SIR WILLIAM B. DALBY, F.R.C.S., President, in the Chair.

*Report of the Council presented at the General Meeting of the Society,
May 13th, 1895.*

THE Council begs to submit its Report upon the work of the Society during the Session 1894-95.

Since the last Report, the Committee appointed to revise the Laws of the Society has concluded its labours, and the Laws, after revision by the Council, were confirmed at a Special General Meeting held July 9th, 1894. They have been published in Vol. XVII of the Society's 'Transactions.'

The work of the Revision Committee was onerous, and the Council is of opinion that the best thanks of the Society are due to the Committee for its arduous labours.

By the revision of the Laws the Sessional and the Financial Years will, in future, begin upon the 1st October. The inconvenience of a change in the Officers and Council amidst the work of the Session is obviated, and the work of the Society facilitated in other directions.

Owing to this change, the present Officers and Council remain in office beyond the usual twelve months.

The Council reports that the number of Fellows on the Roll is maintained.

The number of Fellows at present is 769 ; but of these 165 are Honorary, Corresponding, and Non-subscribing Fellows.

During the present Session 33 have been elected Subscribing Fellows, and Dr. Louis Catrin, Professeur Agrégé à l'Ecole du Val de Grace, Paris, and Mr. Frederick Gant, F.R.C.S., a Past-President of the Society, have been elected Honorary Fellows.

For various causes, 13 Fellows have resigned.

The Society has suffered a severe loss in the death of Mr. Arthur E. Durham, who had been both President of the Society and, for the last ten years—which represent an important period in the financial history of the Society—its respected and valued Treasurer.

The Council has also to intimate, with deep regret, the death of Sir George Buchanan, F.R.S., a Past-President and Lettsomian Lecturer ; of Professor Helmholtz, an Honorary Fellow ; and of two Subscribing Fellows, Dr. Oliver Lemon and Dr. Herbert Gonde.

The Lettsomian Lectures on "The Combination of Morbid Conditions of the Chest," were delivered by Dr. Frederick T. Roberts, to whom the Society is indebted for his exhaustive and instructive lectures.

The Oration on "A Doctor's Holiday," was delivered by Dr. William M. Ord, to a large and appreciative audience.

The XVIIIth Volume of the Society's 'Transactions' was issued in due course. In addition to the papers read before the Society, it gives a full report of the debates.

The Council has much pleasure in referring the Fellows to the Report of the Chairman of the House and Finance Committee on the improvements and alterations recently carried out on the Society's leasehold premises. The Society is much indebted to Mr. Goodsall, the Chairman of that Committee, for having safeguarded the interests of the Society in the course of a series of negotiations, as well as for his personal supervision of the alterations. These have materially improved the Society's premises, and added to the comfort of the Fellows.

Under the revised Laws, the Report of the Treasurer will be made up to the 30th September, and, after audit, will be presented at the first meeting of the Society in October next. The financial condition of the Society is satisfactory, owing, in no small measure, to the never-failing care of the late lamented Treasurer.

The thanks of the Society are due to the Hon. Librarian, Dr. W. H. Allchin, and the Council hopes that the completion of the buildings will afford opportunities for various improvements in the Library which both he and the Council have at heart.

Mr. Hall, the popular and indefatigable Registrar, has given invaluable and unremitting services to the Society during the past session. The numerous alterations in the leasehold premises have thrown upon him much additional work, which he has cheerfully and ungrudgingly performed.

Report of the House and Finance Committee.

The Committee have to report that all the builders' accounts relating to the recent alterations and additions to the Society's premises have been paid.

These alterations and additions, which have included the rebuilding of many important parts of the premises, have been carried out at a net cost to the Society of less than £600, and by their completion the Society has gained an extra room for the Registrar, an extra room in No. 12, Chandos Street, two new offices, a cloak room, a lavatory, a larger and more convenient coal-cellar, a store-room, and two new systems of drainage.

All parts of the premises not required for the exclusive use of the Fellows are let.

The attention of the Committee is now being directed to the re-decoration and furnishing of the Meeting Room, Library, Cloak Room, and Hall, which it is intended to have completed by the 30th September, 1895.

When all the proposed work has been completed and paid for, the total indebtedness of the Society will not exceed £3,100, whilst its surplus income will then exceed £300 per annum—an amount which should be more than sufficient to make the Society free from debt by October, 1905.

Hon. Librarian's Report.

I have the honour to report that during the past year 260 volumes have been added to the shelves of the Library, including 136 presented by Lady Clark, from the library of her deceased husband, the late Sir

Andrew Clark, a former President of the Society ; 43 presented by Mr. G. D. Pollock, F.R.C.S., to whom, as not being a Fellow, the Society is peculiarly indebted ; 48 presented by authors and publishers ; and 30 obtained by purchase.

Very slight progress has been made in the re-binding and restoration of the valuable old books, owing to want of funds, but I am pleased to acknowledge the receipt of a donation from Sir William Broadbent, specially for this purpose. Although further damage to the volumes is now, by their position, arrested, a very considerable sum is required to put these books in a fitting state, and it is much to be hoped that, with the increasing prosperity of the Society, means will be found for this most desirable purpose. Meanwhile, the contributions of individual Fellows would be gladly welcomed by the Library Committee.

The building operations have again very seriously interfered with the well-being of the Library, large numbers of the books have had to be temporarily placed aside, and so rendered unavailable to the Fellows, but the increased wall-space made accessible by the removal of the books of the Ophthalmological Society and the improvements effected in the arrangement of the room are to be counted as distinct and permanent gains to the Society.

Notwithstanding the inconvenience to which this department of the Society has been subject, increasing advantage has been taken of it by the Fellows, and, under less disturbed circumstances, it is confidently hoped the Library may prove of increasing usefulness.

The Library Committee has met, as usual, to select books for purchase and for considering the necessary affairs of its department.

Progress has been made in the Card Catalogue of the old books, but the time of the Hon. Librarian and of the Librarian available for this purpose is necessarily limited. It is hoped, however, that all the works of the fifteenth and sixteenth centuries, amounting to at least 1,000 volumes, will be so catalogued during the ensuing summer.

In this work, as indeed in the working of the Library generally, it gives me much pleasure to testify to the valuable and unsparing services rendered at all times most willingly by the Registrar and Librarian, Mr. Hall.

(Signed) W. H. ALLCHIN, M.D.,
Hon. Librarian.

MEDICAL SOCIETY

DR.

BALANCE SHEET, FROM 1ST FEBRUARY,

| RECEIPTS. | | | | | | | £ | s. | d. |
|----------------------------------------------------|----|----|----|----|----|----|-------|----|----|
| <i>Ordinary—</i> | | | | | | | | | |
| Balance from Last Account | .. | .. | .. | .. | .. | .. | 2 | 11 | 11 |
| Subscriptions | .. | .. | .. | .. | .. | .. | 712 | 8 | 0 |
| Entrance Fees | .. | .. | .. | .. | .. | .. | 37 | 16 | 0 |
| Rents.. | .. | .. | .. | .. | .. | .. | 1,021 | 12 | 3 |
| Contributions for use of Rooms | .. | .. | .. | .. | .. | .. | 68 | 5 | 0 |
| Sale of Transactions | .. | .. | .. | .. | .. | .. | 2 | 10 | 0 |
| | | | | | | | 1,845 | 3 | 2 |
| | | | | | | | £ | s. | d. |
| <i>Extraordinary—</i> | | | | | | | | | |
| Payment by Mr. Boyce <i>re</i> Agreement, 1894 | .. | .. | .. | .. | .. | .. | 100 | 0 | 0 |
| Issue of Debentures, 1895 | .. | .. | .. | .. | .. | .. | 1,500 | 0 | 0 |
| Loan from Bankers (<i>In addition to previous</i> | .. | .. | .. | .. | .. | .. | 200 | 0 | 0 |
| £300) | .. | .. | .. | .. | .. | .. | | | |
| | | | | | | | 1,800 | 0 | 0 |

£3,645 3 2

FOTHERGILLIAN

| | | | | | | | | | |
|---------------------------------------------------|----|----|----|----|----|----|------|----|----|
| | | | | | | | £ | s. | d. |
| Balance at Bank, 31st January, 1894 | .. | .. | .. | .. | .. | .. | 73 | 11 | 7 |
| 1½ Year's Dividend on £916 10s. 5d., 2¾ % Consols | .. | .. | .. | .. | .. | .. | 37 | 16 | 0 |
| | | | | | | | £111 | 7 | 7 |

October 3rd, 1895. Examined, compared with vouchers, and found correct,

OF LONDON.

1894, TO 30TH SEPTEMBER, 1895.

CR.

EXPENDITURE.

Ordinary—

| | £ | s. | d. |
|---------------------------------------------------------|-------|----|----|
| Rent, 11 and 12, Chandos Street | 506 | 5 | 0 |
| Rates, Taxes, and Insurance | 219 | 16 | 10 |
| Salary and Allowances of Registrar | 188 | 13 | 0 |
| Collector's Poundage on Subscriptions | 35 | 10 | 9 |
| Reporter's Salary (Two Sessions) | 44 | 11 | 0 |
| Stationery and Printing | 23 | 12 | 1 |
| Printing and issuing 'Trans.,' Vol. xvii | 140 | 13 | 7 |
| Library Expenses | 34 | 14 | 10 |
| Postage | 18 | 5 | 7 |
| Coals and Wood | 9 | 9 | 8 |
| Gas and Electric Supply (1 $\frac{3}{4}$ years) | 86 | 13 | 7 |
| Repairs | 31 | 10 | 10 |
| Interest on Debentures | 131 | 12 | 10 |
| Conversazioni (Two) | 90 | 0 | 0 |
| Refreshments at Meetings | 20 | 2 | 6 |
| Band at Two Annual Dinners | 16 | 16 | 0 |
| Sundries | 4 | 1 | 4 |
| Wages | 77 | 13 | 0 |
| Chandlery and Cleaning | 27 | 2 | 2 |
| | 1,707 | 4 | 7 |

Extraordinary—

| | £ | s. | d. |
|------------------------------------------------------------------------------------------------------------------|--------|----|----|
| Printing Revised Laws | 5 | 8 | 0 |
| Printing and Stamping New Debentures | 5 | 4 | 6 |
| Additional Electric Light Installation | 33 | 2 | 9 |
| Library Bookcase, £43 5s. 0d.; Fire Grate, £7 14s. 3d.; Table, £8 9s. 6d. | 59 | 8 | 9 |
| Bookcases and Fittings in Cloak Room | 41 | 10 | 0 |
| Re-decorating Rooms vacated by Tenants | 19 | 16 | 6 |
| Re-payment of Banker's Loan with Interest | 526 | 6 | 3 |
| Balance on Contract, 1894 | 395 | 0 | 0 |
| Allowance to Wine Society for Mantel-pieces, &c. | 8 | 0 | 0 |
| Landlord's Architect's Fees | 10 | 10 | 0 |
| Medical Society's Architect's Fees (on Account) | 50 | 0 | 0 |
| Clarke and Mannooch, on Account of Contract for New Roof to Library, and Re-decoration of Premises | 300 | 0 | 0 |
| | 1,454 | 6 | 9 |
| Balance at Bank, 30th September, 1895 | 483 | 11 | 10 |
| | £3,645 | 3 | 2 |

FUND.

| | £ | s. | d. |
|-----------------------------------------------|------|----|----|
| Purchase of Books for Library | 25 | 1 | 6 |
| Balance at Bank, 30th September, 1895 | 86 | 6 | 1 |
| | £111 | 7 | 7 |

(Signed) D. H. GOODSALL, *Treasurer.*(Signed) T. COLCOTT FOX, } *Auditors.*
J. MACREADY, }

TRANSACTIONS
OF THE
MEDICAL SOCIETY OF LONDON.
122ND SESSION.

October 8th, 1894.

OPENING ADDRESS: ON THE PLEASURES OF
MEDICINE AND SURGERY.

By the President, Sir WILLIAM B. DALBY, F.R.C.S. Eng.

GENTLEMEN,—When an occasion arises in which the confidence of the audience in the speaker is so great that it permits him to select almost any subject as the basis of a few introductory remarks at the opening of the session, it is not unnatural that the speaker so favoured should take advantage of such liberty to offer for consideration some reflections that may from time to time have occurred to him, but which are in their nature so fragmentary as not to have found hitherto an opportunity for expression. I hope that, in placing before you a few suggestions, it may not be thought that I have construed this liberty of speech into licence. Those whom I have the honour of addressing are familiar enough with the work of medical men, and with the fatigues and disappointments which are connected with the practice of medicine and surgery. These rooms have for many years re-echoed with the accounts of their investigations, and on many occasions have been the arena of battles which have brought about some of the marvellous changes in modern medicine and surgery, but I am not aware that any of the Fellows of the Medical Society of London have drawn attention to that aspect of our calling for which I can find no better expression than “the pleasures of medicine and surgery.” If I succeed in showing that such pleasures really exist and may be discovered in the midst of lives

laboriously spent, but assuredly well spent, my suggestions may not be unwelcome, and, I hope, will be accepted in the spirit in which they are offered.

My hearers to-night need be under no apprehension that I shall weary them with platitudes about the satisfaction which medical men may be supposed to feel from the idea of doing good, and, indeed, I question if anyone ever selected his profession or practised it upon such grounds; nor do I wish to draw your attention to all the advantages of spending our lives in the pursuit of science. This aspect of the question has been from time to time most eloquently and persistently dwelt upon by far abler advocates than I—by such men as Huxley and Tyndall—and their teachings have been of untold benefit to their country. I am happy in knowing (and I am sure you will be in accord with me in this matter) how much their precepts have permeated society and influenced the views of thinking men in this country, so that during the present generation the teaching of science and the teachers themselves have occupied an entirely different area from what they did in the past generation. All this is familiar enough to you, but I want to go a step further. I wish to show that it is quite possible to so occupy ourselves with all the sciences which make up the entirety of medicine and surgery that our pursuits become raised to an art in its highest sense, and will so give to us in return all those pleasures and delights which art can, and does, give in profusion to her votaries. In speaking of pleasure I limit it in the case of medicine and surgery strictly to mental processes, and whilst, of course, excluding all pleasures of sensation, must equally exclude all those delights derived from those arts which appeal to the special senses of the eye as well as the ear. It is difficult or even impossible to arrive at a definition which shall accurately express in what pleasure consists. Volumes have been written upon this subject, the only result of which has been to show that the line of demarcation between pleasure and pain is very close to each, so that in dealing with any pursuits which may give rise to pleasure, it is convenient to estimate its possibilities in this direction by analogy with what are universally acknowledged to be pleasures in the ordinary acceptation of the term. I must, therefore, ask you to acquit me of any sacrilege if I compare the practice of medicine with any other occupation, pursuit, or recreation, for such a comparison is only used for the moment as a

means of explanation. The keenest pleasures which we are able to derive from any pursuit will generally be found to include the exercise of a good many qualities, and to arise from a great variety of causes; and this will be evident if we carefully consider why some pursuits possess such fascination for those who follow them so ardently. No better example perhaps could be brought forward as an illustration of that than is seen in the cases of African explorers and sportsmen—in short, where we see conspicuously mingled at the same time the spirit of enterprise and the exercise of determination, courage, and skill. There are the search and discovery of hitherto unknown areas in which may be found the traces of men or animals, the following up of such traces until they are in sight, and, in the case of animals, their pursuit, their capture, or killing them, in which latter is involved skill. In all these divisions it will be observed that the highest pleasure is not reached until after great labour, until great difficulties have been surmounted, until the explorer or sportsman seems unconsciously to regard all difficulties (in the words of Wellington) as being “made to be overcome”; so the very labour becomes a pleasure in itself by the hopes which it engenders. Without doubt in this way the labours do actually often become at the time insignificant. We know also that what is termed pleasure is of a threefold nature, and consists in anticipation, realisation, and retrospection. Who of us has not experienced in the retrospection of pleasures how small become the difficulties and labours we have undergone? Fatigues, hardships, and disappointments that have been not easy to bear at the time are very little thought of, and the remembrances of them become dimmed to the memory as time goes on. It is the successes which remain clear to us and which we never forget. How little do we hear from the explorer of the difficulties and the dangers, or from the sportsman of his bad days, but how seldom does he tire of recounting his good days? The fatigue, if there be any, is confined to his impatient hearer. I have yet to mention in connection with the explorer and the sportsman that, if the application of his past experience is delightful, so also is the exercise of skill with the consciousness of constant improvement—above all, the uncertainty of success. Sport would cease to be sport without this constant element, and it is obvious enough that no game would be worth playing if it were not full of uncertainties. This applies equally to occupations

none of which would be worth pursuing if the results were certain. Now I permit myself, in passing, to suggest that amongst its many advantages medicine, occasionally at least, possesses the charm of uncertainty in the results of treatment, and the same might be said even of surgery in regard to some of our operations. There are, however, some things in the doing of which the interest never palls. The explorer and the true sportsman know this full well, and it requires no words from me to tell you that medicine and surgery are, if once engaged in with the true scientific spirit, the most absorbing of studies and occupations. It arrives then to those who do practise our profession in this spirit to become enthusiasts, and certainly it is something gained if we acquire a mental attitude which enables us habitually to so contemplate the pleasures of our work that the labours of it disappear. If any instance were wanted which should display the analogy which exists between the explorer and the surgeon, we have one at hand in our last Lettsomian lecturer upon Peritonitis. He might be not inaptly described as the explorer of the peritoneum. There were many African explorers before the sources of the Nile were finally discovered; but if the history of these adventurers be studied it will be observed how careful each one was to take advantage of the knowledge of his predecessors in combating the difficulties which had to be surmounted; how careful to take note of, and mark for the guidance of those who were to follow him, the dangers to be anticipated and avoided; how cautious in making statements to say that such points which might at first appear to have been settled were still open to some doubt; how one explorer after another returned without having settled the question, but how each one had not only a hope, but a firm conviction, that someone would succeed at last; and how they all left a sort of impression on their hearers that they would again and again go back until they at last returned with the complete knowledge which they had so desperately striven for. When I listened to Mr. Treves upon Peritonitis,* it appeared to me that he had spent a considerable portion of his life within a peritoneum; that when he paid each of his numerous visits to this dark country, he had made himself acquainted with the doings of every previous explorer in this region, and these explorers belonged to several nations—the English, French, German, and many others; that

* ‘Trans. Med. Soc., Lond.,’ vol. xvii, 1894.

he frequently found the district which he visited infected with the plague of septicæmia ; that, though there were times when it was free from this fever, he frequently selected infected periods for his visits ; that in his travels nothing that former visitors had seen ever escaped his notice ; that he carefully prepared himself against all the dangers which they had experienced ; that he had a shorthand writer with him to take down minute descriptions of everything he saw ; that he afterwards himself carefully annotated every fact which was certain ; that he placed a query to many points which he had previously stated as facts ; that he discarded many precautions as useless which he previously had employed ; and that he expressed in footnotes his opinions as to probabilities. At one place I find, after many journeys, the following statement : “It has now become evident that peritonitis depends almost entirely, if not entirely, upon infective processes, and that these agencies are concerned, directly or indirectly, in every form of the disease.

“There are those who maintain that there is no form of peritonitis which is not due to infection, and although the data upon which such an assertion is based are not entirely perfect there is yet much presumptive evidence in favour of its accuracy. Indeed, the domain of non-infective peritonitis is becoming rapidly more and more dubious.” I would also call attention to the fact, which appears at the end of the second lecture, that after some of his many expeditions to “Peritonea” he seems not to have been altogether idle during his well-earned repose, for he gives references to sixty-seven works upon the subject which he had read in various languages, and for the benefit of those who were not quite satisfied with this amount of literature he adds a note : “For some fuller account references may be made to various articles,” and proceeds to name them. It appeared also to me that after each return from this Peritonitic district he was full of hope and anxious to go back as soon as his engagements would permit him : and that he was by no means jealous of other explorers. Our lecturer, on the contrary, observed that a few of the early explorers had in some particulars succeeded better than himself, and he had returned to their old routes. You will notice, please, that he is really a model explorer, who ought to be held up as a pattern to others. He has behaved with the greatest liberality, for at the time I heard him he brought back a complete map of

the entire district he had traversed, with copious notes and most valuable advice, and presented it to the Medical Society of London for the use of future explorers, and that excellent Society, in the same liberal spirit which marked the donor, has given it to the world.

Gentlemen, do you detect in the surgeon the enterprise and enthusiasm of the explorer? I speak of enthusiasm, but in the instance of a follower of our art it is not confined to himself. The enthusiast inspires it in his pupils, it reacts from the intelligent pupil to his teacher. Gentlemen, it is enthusiasm that destroys the monotony of an occupation—yes, even the monotony of life. I can fairly venture to speak of these matters. Many might suppose, and have, indeed, said to me words to this effect: Being engaged, as you are, with only one branch of surgery, being debarred from the fascinating conditions which surround general surgery, taking no part in its brilliant achievements, do you not feel fatigued by contemplating the same restricted area affected with the same aspects of disease? To such inquiries I can truthfully answer, Never. And as I reply I cannot avoid the suspicion that it is my questioner who has experienced a feeling of monotony, and who might have done much better work if he had not. It is the artist who paints potboilers who suffers from monotony, and if he suffered extinction it would be no serious loss to the community. If any specialists require consolation for the tedium of their occupation I am here to-night to give it them, for I am one of those who believe that to the true followers of medicine and surgery one of its pleasures and rewards is the impossibility of monotony. Those who have experienced it must know what it is to feel dull. It is a sensation which up to now I have not felt, and I can only hope that at this moment I am not instrumental in producing it. I firmly believe that for us, in the words of the clown to Malvolio, “There is no darkness but ignorance”; and I will add there is no monotony save in the sleep which sweetly restores us and the death which releases us when our work is ended. But not the least amongst the many delightful characteristics of enthusiasm, as I just now observed, is that its possessor can and does share it with others whilst observing their doings, although taking no part in them. It has, for example, happened to myself to be in the company of one of the most justly honoured members of my profession, whilst we witnessed a

beautifully executed and most intricate operation, performed for the first time in this country by one of our most brilliant surgeons. It was so done that the certainty of death was replaced by what afterwards proved to be the certainty of life in the person of a mutual friend. There was at that time expended the enthusiasm of the surgeon who operated; the enthusiasm which the two spectators felt and expressed to each other, in that they should have had the privilege of living at a period when they could witness the extraordinary advances of modern surgery. It is needless to add that subsequently a still further expenditure of enthusiasm took place in the person of the patient who had been made perfectly familiar with the history and hitherto fatal termination of every case like his own—at least, so far as had been observed in this country or in the foreign literature of surgery. In this narrative you will detect one of the pleasures which surgery is capable of affording its followers, and a slight effort of imagination will readily suggest numberless other instances in many respects similar to it.

And now I wish to show what an important part, and I think very often an imperfectly recognised part, imagination plays in the subject I am attempting to deal with. We are all of us familiar enough with Tyndall's essay on 'The Scientific Use of the Imagination,' and without any disrespect I may observe that a more accurate title to his brilliant essay would have been "The Use of the Imagination in the Pursuit of Science," for the imagination does not admit of being used scientifically or unscientifically. However this may be, and it is not important, I have for many years believed that one of the pleasures enjoyed in an eminent degree by physicians and surgeons has been the exercise of the imagination. I have hitherto not ventured to express this view, as I might have been met with the rejoinder that the more the surgeon sticks to what he knows, and the less he indulges in his imagination, so much the better for the patient. But in the early part of this year I came upon the following remarks by Herbert Spencer on this well-known essay of Tyndall. "Rightly conceived," Spencer says, "imagination is the power of mental representation, and is measured by the vividness and truth of this representation. So conceived, it is seen to distinguish, not poets only, but men of science; for in these two imagination bodies forth the forms (and, he adds, the actions of things unknown)."

He goes on to explain that the difference between the imagination of the poet and the man of science lies in the fact that, whereas the imagination of the poet is exercised upon objects of human interest and his ideas glow with emotion, the imagination of the scientific man is exercised with things utterly remote from human interest, and which excite no emotion—that whereas people at large can follow the poet, the imagination of the scientific man is inaccessible to them. Now it seems to me that this method of reasoning especially applies to the study of disease upon human beings; that in investigating the condition of organs hidden from view the mind of the physician or surgeon is constantly picturing to himself these conditions; that in examining these internal organs by the best means at his command—the lungs and the heart, for example—he is incessantly picturing to himself those conditions, whether of health or disease, which his previous experience has made familiar to him; indeed, in proportion to the vividness of his imagination so he appreciates the possible changes from health, and so sees in his mind's eye the actual alterations in structure of the organs under examination. He not only hears the sounds of the heart in valvular disease, but he sees the deficiencies of the valve; and the more active his imagination the more accurately and vividly does he appreciate the precise extent of disease. Surely this is no fanciful picture, and surely in so exercising the imagination consists one of the pleasures of the physician. A similar intellectual pleasure is indulged in by the surgeon who examines an abdominal tumour. He not only recognises it by his sense of touch, but by the aid of his imagination he sees it, and whilst seeing it compares it with others he has known of a like nature, and pictures to himself the details of procedure when shortly he will be removing it through an abdominal section. The pleasure of the physician may perhaps cease when he knows what is there, but the surgeon looks to something further—to the actual moment of capture and eradication of the disease. There is, you will observe, in regard to the exercise of imagination, a vast difference between medicine and the other sciences—a difference not at all contemplated, or at least not referred to, by Tyndall. His contention was something to this effect: that, for example, we know perfectly well the laws which govern such matters as sonorous vibrations, so far as they affect air or water; that, although the bodily eye cannot see the condensation and

rarefaction of the waves of sound, we construct them in thought, and believe in their existence as surely as we believe in that of the air itself. Now this is not quite analogous to the exercise of the imagination in the pursuit of medicine. If we take any of the phenomena with which Tyndall was dealing, such as sound or light (the condensation and rarefaction of the waves of sound will do as well as any other), they are a something that the eye has never seen. Who ever saw a wave of sound? Still less did anyone ever see it in action of condensation or rarefaction! We can all see, and have seen, the effects of such action upon atoms by experiments, and we have appreciated by our ears the rapidity of vibrations; but the wave itself is invisible and only known to exist. Now in the case of medicine, when our investigations are being made as to the state of an internal organ hidden from view, we have seen it, we know it well; we are not only familiar with it in health, but have seen it at *post-mortem* examinations exhibiting all sorts of variations from health in the form of disease. When, therefore, the imagination of the physician is brought into play he does not think of something he has never seen, or of something invisible to the eye, but he imagines a condition of which he has seen the like, and which he has actually handled. Thus his mental picture is far more vivid than in the cases which Tyndall uses for illustration, and, being more vivid, it is far more accurate as a mental picture. Nay, more than this, he is still further helped by the physiologist, who can display to him those organs (which he knows so well in the repose of death) in vital action and performing their functions. The physiologist can show us the heart (of an animal, be it noted) in action during life, the brain during its vitality, and many other organs, such as the liver, kidneys, and stomach. Whilst aided by such knowledge the mental picture becomes clearer, and is still further accentuated during the formation of an opinion as to the state of the organ under examination. And now, notwithstanding the most skilful treatment, is not the opinion verified or falsified at a *post-mortem* examination? So herein lies the charm of uncertainty which the pure scientist has not the advantage of—an uncertainty which is at last set at rest, and teaches the physician one of the many lessons which year by year adds to his experience, and gives him more certainty in his opinions. It may be more uncertainty, but at least it is some-

thing which advances further and further in the direction of accuracy and truth.

What I am especially anxious to show is the immense importance of the imagination in the practice of surgery; how, by the use of a brilliant imagination, many of the great changes in the march of surgery have been achieved; how the want of imagination has often checked the progress of surgery and left certain branches of it in a state of stagnation for years. Let me, for a moment, recall to your minds an opening address which was given by one of your late presidents from the chair four years ago—viz., by Mr. Knowsley Thornton, “On Abdominal Surgery, Past and Present”—a history of his own art by a true artist, told in simple language, and with a modesty as regards himself which might be expected from him. But in this narrative it was easy enough to detect the depression which he felt whilst he was dealing with periods when mistakes were not only made—this is natural—but were persisted in for years; easy enough, too, to detect his enthusiasm when he relates how these stumbling-blocks were swept away. He told us how, in 1809, the first ovariectomy was performed, and successfully; that for sixty years afterwards no real progress was made; and then he shows very clearly why this stagnation took place—that in 1821, with no previous knowledge of McDowell’s work, Nathan Smith, of Connecticut, operated by a method nearly perfect; that, his incision being three inches long, he waited till all bleeding had ceased before he opened the peritoneum, used animal ligatures, cutting them short, and dropped in the pedicle. The patient was walking about in three weeks. Then, added Mr. Thornton: “Is it not marvellous that, with such a perfect example of good surgery before them, operators should have gone on blundering with long incisions, long ligatures, clamps, and abominations of every kind, piling up the victims till the total is probably equal to the death-roll of a great battle?” After 1821 there was another step, for pains were taken to include the cut edge of the peritoneum in the sutures. About 1850 the mortality rose in America for twenty years to 70 per cent., due, in the opinion of Mr. Knowsley Thornton, to the long ligature first, and, later, the clamp. I now quote again: “The long ligature appears to have separated from the nineteenth to the thirty-fifth day, or even later, and during the whole of that period the unfortunate patient had a

carefully prepared moist roadway for the causes of putrefaction and death, leading directly from the outer air to the deepest recesses of her peritoneum, and at the bottom of this roadway a lump of half-strangled tissue; and probably the dirty fingers of the nurse, and the still more dangerous fingers of the surgeon, fresh from other suppurating and putrid wounds, had a tug at it daily, stirring up fresh irritation in the remains of the pedicle, which nature was all the time doing her best to heal, and leaving only too often in the moist silk thus handled the most deadly causes of future mischief. Shall we marvel that there is a death-rate of 70 per cent., or shall we not rather marvel at the hair-breadth escapes there must have been, and at the marvellous vitality and resisting power of the tissues of the lucky 30 per cent. who recovered?"

I quote again in regard to the clamp: "But what of the actual instrument, with its great hinge impossible to clean? It was taken off the pedicle of a patient dying of septicæmia, or it came away reeking with the foulness of a separating slough, and it was sent to the instrument maker's to be cleaned, came back with its hinge oiled with the grease of an instrument-maker's shop, in which probably post-mortem and dissecting instruments were cleaned—shall I not rather say dirtied—side by side with it, and then it was put on to a fresh pedicle without even a wash or a boil, or a steeping in some antiseptic lotion. It was put on, I say, to a nice little pedicle, which a fine sewing needle and silk would have secured, and the patient, a beautiful girl, perhaps in the first flush of womanhood, was in thirty-six to seventy-two hours a corpse, bloated and disfigured, with foul gases bursting from her tissues wherever they were incised, and then came the record too often: 'exhaustion' or 'peritonitis.'" The whole history of abdominal surgery as told by Thornton is a romance, ending, as it does, with a triumphal march of a gallant army, Lister at the head of the troops, the man who taught them to be "surgically clean." Is there no exercise of the imagination in this romance? Is it not perfectly plain during the long life of the long ligature that if a vivid imagination had been at work the progress and route of septicæmic poison all along the ligature would have been visible to the possessor of such an imagination? Was not the period of stagnation in abdominal surgery with all its ghastly records due to the absence of imagination in the surgeons of that day? Is not the

progress of abdominal surgery till it reached its present position clearly due to those surgeons who have possessed and exercised a bright imagination, in a way somewhat similar to what I have described in the case of the physician? Is not the activity of imagination the mark of genius in poets, artists, and the writers of brilliant romance? If the mental processes are the same with the surgeon who establishes a marked advance in the history of medicine or surgery, can we deny him the attributes of genius? I leave this to you; but at least you will grant him one of the pleasures of medicine and surgery, the actual existence of which I hope I have made more or less evident. Whilst I draw attention to the intellectual side of surgery, I wish, if I can, to place it before your minds in such an attitude (if I may use the expression) that it will lie side by side and compare not unfavourably with literature and the arts. I wish to show that it is in very truth an art, and thus something worth cultivating, not only for its usefulness, but for the pleasure which it is able to afford to those engaged in it. Now the pleasures which poetry and literature of various kinds are able to give are of a twofold character. In the first place there is the pleasure which is derived from the emotions, and in the second place the pleasure which is strictly of an intellectual kind. Although in the matter of romance or history the emotions are partly engaged, as in poetry, there are certain other forms of literature in which the emotions are entirely untouched, and yet the enjoyment derived from such literature is very complete. Thus, for example, we can all call to mind essays which would fulfil this proposition. In what, then, does the pleasure consist? I think it is to be found in its completeness, in its perfect methods of expression, in the excellent choice of language, in the due sense of proportion which it leaves upon the reader, in its obviously truthful intent, and in its entire accuracy—in short, in its producing a condition of mind for the time being which Huxley would define, to use his own expression, as “intellectual content.” This is, without doubt, a feeling of great pleasure, and I believe that a precisely analogous feeling is produced from a complete and successful piece of surgery. If you allow this, surgery is not only the possession of the surgeon who is the active agent, but is shared by those who take an interest in it, just as much as the pleasures of literature are equally the possession

of the reader as the author. In this sense, therefore, surgery bears a close relationship to art—as close as that of literature. And does not literature become an art when an author is able to place before the mind's eye of his reader the picture of a startling incident, in which the actors of the scene represent the highest types of female and manly beauty, expressing in their faces and attitudes the most varied emotions? If, therefore, my assumption is sound, I claim for medicine and surgery a family relationship to the arts and literature, and with it a participation in the intellectual pleasures which these are able to afford. It is, I may say, one of the provinces of the Medical Society to prosecute this claim, to encourage the frame of mind I have described, and to so help us that in our work we never permit our eyes to wander from our ideal, which is nothing less than truth in nature. Diderot, in illustration of the fact that the constant contemplation of the model had the effect of making the truth of nature forgotten, because the artist can think of nothing but the models he has studied, relates the story of an artist who, before he drew a line on his canvas, used to kneel down and pray, "Good Lord, deliver me from the model." And so it should be in medicine and surgery, if we are to get the best possible from them; we should be able to dismiss from the mind every consideration that may interfere with the true scientific spirit. In one sense our art has a feature of its own: it is the effect of the mistakes which we make. They are sometimes no doubt disastrous at the time, but so long as they are not the results of culpable ignorance, and so long as they occur in the hands of the true followers of science, they are actually a help in the progress of medicine. They are recorded by the investigator as a warning to others, and they are so emphasised as to be of real service to those who follow: in fact they become landmarks for future generations. This is the effect of *our* mistakes upon *our* pursuits. In literature and the sister arts errors that have been perpetrated remain as disfigurements, whilst errors committed by those who have spent their lives in promulgating the many religions that have swayed mankind have not only disfigured humanity, but have in past ages stained history with blood, and these errors have been so numerous as to have obscured to the multitude the Divine light which should have shone through them. Let us hope that whatever errors we commit, so far from

obscuring light, may act as beacons to guide those who follow us in the search for truth.

And now, in bringing my reflections to an end, let me say I do not suppose for a moment that all of those who practise medicine and surgery, and even practise it in the best interests of science and of their profession, have arrived at that attitude of mind which permits them to contemplate in detail the processes of disease and its treatment so as to be a source of pleasure, but I believe this is merely the result of circumstance. The lives of most of us are so busy that there is but scant time for reflection. With a large proportion of mankind the enjoyment which it is possible to extract from their lives is unobserved, and the flowers remain unplucked by the hands which serve only to support existence and that of those dependent on their industry. In dealing with the pursuits of medicine and surgery, rich as they are in the sources of pleasure, I hope I may be pardoned for occupying your time in drawing attention to possibilities which, though they must have presented themselves to many of us, may easily have escaped the notice of a few.

ON HYPOCHONDRIASIS AND NOSOPHOBIA.

By JULIUS ALTHAUS, M.D.

It is a singular fact that, while medical authors of the 17th, 18th, and the first half of the 19th centuries have written very copiously on hypochondriasis, the more recent treatises on diseases of the nervous system by Rosenthal, Grasset, Buzzard, Ross, Oppenheim, and others, should be absolutely silent on this subject. In Leube's valuable and exhaustive work on the diagnosis of nervous diseases which appeared a few months ago, hypochondriasis is only mentioned by the way, in a few lines, as an apparently insignificant condition. The periodical literature of the day teems with papers on hysteria, chorea, epilepsy, and other nervous maladies, but the word hypochondriasis is rarely, if ever, met with. This neglect of the disease by modern writers, from whom otherwise nothing escapes, might at first sight convey the notion that hypochondriasis had recently ceased to prevail; but such an explanation is contradicted by well-marked cases of it which we are in the habit of meeting in practice. Least of all could such

an assumption be entertained in this country, as England has, more especially by French writers, always been credited with being the real home of hypochondriasis, this being, in their opinion, due partly to our damp and foggy climate, which is believed to create a tendency to indigestion and liver affections, and partly to "the odd mixture of aristocratic and democratic government obtaining here," and which is said "to lead to constant agitation and endless disappointments!"

To my mind the circumstance just mentioned is rather to be accounted for by the prominence which has of late years been given to the study of the group of symptoms known as neurasthenia, and for which I have recently proposed to substitute the term "encephalasthenia" as better suited for it. In the latter neurosis various forms of fear, such as agoraphobia, claustrophobia, zoophobia, and many other kinds of apparently groundless alarms and panics, are prominent symptoms. Such patients entertain not unfrequently a fear of the invasion of some disease, or of impending death; and for these latter conditions the terms nosophobia and pathophobia have been proposed, and have by some writers been used as equivalent with hypochondriasis. It is one of the objects of the present paper to draw a distinction between these conditions, and to show that hypochondriasis is a well-marked neurosis by itself, which is plainly distinguished from other neuroses by its definite symptoms, course, and termination, differing from nosophobia on the one hand, and from hypochondriacal insanity, with which it has been confounded by some writers on psychological medicine, on the other hand.

HYPOCHONDRIACAL INSANITY.

It is indeed a great mistake to assume that most hypochondriacs are insane; on the contrary, they are frequently in good mental health for the ordinary purposes of life. There is certainly no lack of decision, and no want of judgment. In the beginning of the affection, more especially, the patient, far from experiencing any difficulty in going on with his usual occupations, often seems to find the exercise of his intellectual faculties actually easier than it was before. This is probably owing to the fact that, when his attention is diverted into other channels, he forgets, to some extent, the distressing sensations which he experiences when his

mind is not fully occupied, so that intellectual exertion is an actual relief, and therefore eagerly sought for. It is only in the further progress and later stages of the complaint that no occupation or distraction will succeed in making him forget his misery. The mind, by being incessantly riveted on a single point, is then apt to lose its balance, and the intellect may become deteriorated.

Yet simple hypochondriasis rarely merges into hypochondriacal insanity or imbecility; and the difference between these several conditions appears to me to be a fundamental one. Thus, I would call a man a hypochondriac who believes himself to be suffering from cancer of the liver because he experiences uneasy and distressing sensations in that organ or its neighbourhood, and who keeps dwelling and brooding on his condition in spite of being assured by his medical attendant that he has no such disease as he imagines himself to have. On the other hand, a man who believes that he has a load of hay in his head, or that his body has been changed into glass, or that he cannot move his legs because they have been turned into wood or wax, or gold or velvet, cannot be called a hypochondriac, but is either insane or imbecile. Another distinction between the two conditions is that in hypochondriacal insanity delusions are habitually entertained about the origin of the complaint, which the patient looks upon as a punishment inflicted for his sins by the Almighty, or as owing to poison administered to him by his friends or servants, or to being magnetised or electrified against his will, &c. The real hypochondriac is never subject to such delusions, but often hits the mark by attributing his illness to inheritance, over-eating and drinking, excitement, overwork, and similar tangible causes.

Hypochondriacal symptoms are likewise apt to occur in persons suffering from general paralysis and other organic diseases of the nervous system, and are then mixed up with such objective signs as alterations in the size of the pupils, difficulty in speaking, reading, writing, and walking, and general failure of mental power, &c. Again, nocturnal epilepsy, which may exist without the patient or his friends being aware of it, may be accompanied with symptoms of hypochondriasis, and may thus be mistaken for the latter. The symptoms of hysteria, on the other hand, are so widely different from those of hypochondriasis that it is difficult to understand how such excellent observers as Sydenham, Hufeland,

and others, could have been brought to believe the two conditions to be identical. This error may perhaps be accounted for by the fact that the one neurosis is sometimes found complicated with the other. The symptoms of hysteria have of late been so pointedly described by numerous authors that I do not consider it necessary in this place to dwell upon the features by which they are distinguished from those of hypochondriasis.

THE NATURE OF HYPOCHONDRIASIS.

The characteristic feature of hypochondriasis is that the patient habitually experiences a feeling of profound illness, which is caused by distressing sensations referred to one or several portions of the body. These sensations, which I shall presently describe more fully, occupy his attention after a time so exclusively that he cannot think of anything else and begins to brood over their origin, significance, and eventual issue. His imagination thus becomes disordered, and he creates for himself one or several imaginary organic diseases from which he believes himself to be suffering. The sensations therefore are real, but their explanation is faulty, and the further development of the neurosis hinges upon this peculiarity.

THE VARIOUS FORMS OF HYPOCHONDRIASIS.

In a number of cases of hypochondriasis the *head* is the principal seat of the distressing sensations which are experienced. There may be pain, but more frequently there are other peculiar feelings, such as pressure, tightness, vibration, swelling, distension, emptiness, fulness, dryness, icy coldness or boiling heat, a feeling as if the head were filled with air, water, sand, lead, or stones, or as of electric shocks, or a clock ticking in it, or as if there were explosions by which the brain was shattered and split up, or as if ants or snakes were crawling about in it, or as if it were torn by claws or filled with live coals, &c. Where such and similar paræsthesiæ are habitual, we cannot be surprised that the patient after a time becomes convinced that he is suffering from some awful and unheard-of brain disease, by which that organ has become softened or otherwise destroyed. He then believes that he has broken a blood-vessel in his head, or that he has a

hole in the brain, or that he is threatened with apoplexy, or that he is on the point of going mad, and will die an idiot.

In this form of the neurosis we also meet occasionally with that singular disturbance of visual perceptions which is so particularly distressing to the sufferer, who finds, when looking at his reflection in the glass, that he looks quite different from what he used to do, or that, when he looks straight at some object, the latter suddenly begins to move or to change its aspect and to become muddled up with other objects in the neighbourhood. Thus the patient, when quietly reading a book or a paper, will suddenly jump up and call out that all the lines are running into each other, that he can no longer see, or has painful sensations when looking at certain objects or colours. Where such visual disturbances occur every few minutes, as I have seen in some cases, one cannot really be surprised that the patient gets quite beside himself, keeps asking whether he is going mad, and talks the whole day to his family and friends about nothing but the extraordinary sensations which will not leave him in peace. Such hallucinations of sight do not, however, constitute a separate form of hypochondriasis, as has been asserted by Mendel, but only tend to show that a portion of the brain is suffering which is in intimate connection with the visual centres. I have seen such symptoms associated with hallucinations of smell and taste, and with such awful feelings in the abdomen that the patient imagined himself to be suffering from intestinal obstruction or cancer of the rectum. They are therefore only one of the numerous symptoms which may occur in hypochondriasis, and which point to a considerable functional disturbance of the brain, or as Sydenham expressed it, "ataxy of the animal spirits."

In another set of cases there are few or no cephalic sensations, and the chief seat of the trouble is in the *chest*. Many patients complain of præcordial anxiety, or that their heart is bursting or jumping out of the chest, that it has ceased to beat, that circulation is no longer carried on, and death is impending. Others imagine that their heart is dried up, or subject to polypus, aneurism, or fatty degeneration. A dry cough or a troublesome expectoration of some dark or light-coloured mucus, together with the feeling of an iron band round the chest, induces them to think that they are in an advanced stage of consumption, or have an incurable form of asthma.

The *digestive tract* is likewise a frequent disturber of the peace. The patient keeps looking at his tongue every few minutes, and has such odd sensations in it that he is convinced an ulcer or a cancer must be forming there; or he complains of choking sensations, imagines that he has lost the power of swallowing, and expects that hydrophobia is on the point of being developed. There is often excessive belching, eructations, hiccough, regurgitation of food, nausea, and such terrible feelings in the stomach as to convince him that there must be at least gastric ulcer or cancer. One of my patients had a feeling as if the stomach was constantly being turned over from one side to the other; and another complained of such fulness, heaviness, swelling, and noise in the abdomen, that he thought the bowel was obstructed, and the anus blocked up.

Again, the *pelvic organs* may be the principal seat of the distressing feelings which are such a characteristic feature of hypochondriasis; and delusions concerning the condition of these parts will thus be rife. Thus, a male patient will imagine himself to have become impotent, perhaps shortly after he has engaged himself to marry, and may commit suicide on the eve of matrimony. Or he may be troubled by over-anxious feelings about the consequences of masturbation, gonorrhœa, and spermatorrhœa; or he may go from one surgeon to another to be sounded for stone in the bladder, which only exists in his imagination. A female patient, on the other hand, may be subject to such pricking, stabbing, and burning sensations in the womb that she gradually comes to believe herself to be the victim of uterine cancer.

Finally we meet with cases in which almost all organs of the body may be the seat of distressing sensations. There is indeed no part which may not be painfully affected, and no form of distress that may not be experienced. Such a patient will complain, either successively or simultaneously, of pain and heat in the head, of throbbing in the temples and ears, of difficult articulation, of stabbing feelings in the neck, choking in the throat, palpitations and shortness of breath, of cramp in the stomach, discomfort in the right hypochondrium, pain and soreness in the bladder, and numbness and aching in the limbs. During the same interview he may express his belief that he has, or is going to have, a fit of apoplexy, heart disease, aneurism, gastric ulcer, consumption of the bowels, general wasting of the

body, rheumatism, fever, Bright's disease of the kidney, and enlargement of the prostate.

An unprejudiced observation of well-marked cases of this kind must lead us to the conclusion that the distressful feelings in different parts of the body, which are complained of by such patients, and described, month after month, and year by year, with the greatest minuteness and the most wearisome reiteration, cannot be *imaginary*, as is often too readily assumed by the friends and medical attendants of the sufferers, but must have a substantial base in fact. In cases where incessant complaints are made, and where the doctor on examination does not discover any objective symptoms, he is after a time inclined to disregard the trouble altogether; while the friends of the patient, finding that in spite of all the horrors which he is never weary of describing to them, he does not get much worse in course of time, and can on occasions be cheerful and forget all about his troubles, harden their hearts to him, and tell him plainly that he is putting it on, and that, if he would only "rouse himself," or "pull himself together," he would soon be all right. Nothing, however, is more apt to make the patient angry and indignant than to be told that all his troubles are imaginary, and he will reply that he is not a child, but knows perfectly well what he is about, and that he is dreadfully ill. From long-continued personal observation of, and reflection about the nature of such cases, I have come to the conclusion that such patients are really very ill, and that it is as impossible for them to get better by "pulling themselves together," as it would be for a patient with *tic douloureux* to have no pain, or for one with cystitis to pass normal urine. We must ask ourselves the question what object could be gained by such persons through their incessant tedious complaints? They are sure to become in course of time a positive nuisance to their friends and doctors, and this cannot afford them any satisfaction. Sauvages was indeed not far wrong when he said that hypochondriasis was "hell for the patient, and purgatory for the doctor." Nor is it possible to understand why they should commit suicide, except for the purpose of getting rid of sufferings which to them are well-nigh intolerable.

COURSE OF THE DISEASE.

Where such harassing sensations as I have described are almost constantly present, the patient's character and disposition naturally undergo, in course of time, a complete change. The incessant distress he feels makes him sullen, morose, peevish, crotchety, irritable, and, above all, utterly selfish and inconsiderate to others. Being firmly convinced that he has some incurable and mortal illness, which appears to him unexampled and extraordinary, he eventually can think of nothing but his ailments. He is apt to weigh every particle of his food and drink; he examines his expectoration, sweat, urine, and fæces, which he insists on submitting to his doctor; and holds forth about all these matters to his friends, or even strangers, without the least compunction or reserve. He is always in a state of despair, believes his end to be near, says that he will be glad to die, and while fearing death more than anything else, may commit suicide on a sudden impulse. In consequence of his being in an incessant state of fear and alarm, the vital functions are, after a time, improperly performed. Digestion and assimilation suffer; the mouth becomes dry; the tongue appears covered with a white, tough, tenacious mucus; there is constant hawking and belching; hence the old term *morbus ructuosus* or *flatuosus*; the stomach may become dilated, and the liver congested. The bowels are habitually constipated, and piles often make their appearance. The circulation also suffers; the pulse is slow, irregular, and intermittent; there is throbbing in the epigastrium, which may be seen and felt; the skin is rough and dry, the complexion yellowish or brown (*morbus niger*); the face pinched and hollow, the body wasted (*morbus resicatorius*); the urine dark and scanty, or colourless and abundant; while insomnia becomes more troublesome as time goes on.

CAUSES OF HYPOCHONDRIASIS.

The course of the disease is apt to be protracted and severe where it is chiefly owing to neurotic inheritance; and comparatively short and slight where the predominant influence in its production has been exerted by exciting causes which have a prejudicial influence on the nutrition of the nervous system. Such causes are principally a sudden shock, domestic grief, loss of

relations, crossed love, impaired social position, change from affluence to poverty, disappointed ambition, undue mental and physical strain, alcoholic and sexual excesses, the habitual abuse of purgatives, narcotics, and analgesics, certain acute infectious diseases, especially influenza, and long-continued gastric and hepatic troubles. To these should be added gonorrhœa and sexual irregularities in men, and chronic leucorrhœa, menstrual derangements, the puerperal state, and the menopause in women. The neurosis is also apt to come on in women shortly after they have become engaged to be married, and after certain gynæcological operations. Reading medical books, especially those issued by the quack fraternity, and sedentary habits are likewise of influence. In cases where no exciting causes can be discovered, the hypochondriasis has to be looked upon as purely *constitutional*. This is the worst form of the disease, which is rarely, if ever, cured, more especially when affecting patients of an advanced age, and is apt to end fatally, after a protracted period of marasmus. Where, on the other hand, exciting causes have played the principal part in its production, we have to do with the *accidental* form of hypochondriasis, which offers a far more favourable prognosis. In this form, however, there is always a certain amount of predisposition as well; for many persons go through a protracted and painful illness, and through fearful troubles as well as excesses in life, without ever becoming hypochondriacs; and it is therefore necessary for this condition to be established, that the imagination should be impressionable and easily affected by morbid sensations, so as to be induced to transform feelings into maladies, and thus to create diseases which have no real existence.

This neurosis is most frequent between 20 and 40 years of age, probably because the factors which are apt to produce it are then more active than at other periods of life. It occurs, however, occasionally in children and the aged. Men are more subject to it than women, the proportion in my practice having been about 70 per cent. for males and 30 for females, while about the reverse percentage for the sexes appears to prevail in hysteria. In some few cases the neurosis eventually merges into hypochondriacal insanity and dementia, while in others death may take place by intercurrent diseases, such as bronchitis or typhlitis, or by suicide.

CEREBRAL LOCALISATION: THE VISCERAL CENTRE.

The symptoms of hypochondriasis have by many of our predecessors been ascribed to a faulty condition of the blood or humours, and by others to disease of the abdominal organs, more especially the spleen, liver, and stomach. No proofs for these assertions have been forthcoming, and Sydenham was the first who sought their origin elsewhere, stating that they arose "from an unequal distribution and rushing about, or ataxy, of the animal spirits." Translated into the language of the present day, this means that hypochondriasis is a disorder of the nervous system, to which the symptoms are indeed plainly seen to be referable. It remains for us to see whether we are able to localise the seat of the disease in any special department or centre of the nervous system. The primary symptoms of the neurosis may be looked upon as disturbed sensations in the viscera of the body, and everything leads us to believe that for these, as for other functions, there exists a special cortical centre. The so-called sensory-motor area in the brain, which is situated in the Rolandic convolutions, contains a regular series of definite and more or less strictly localised centres for motion and sensation of the thigh, leg, foot, and toes, of the head, eyes, face, tongue, and throat, and of the shoulder, elbow, wrist, and fingers. A normal condition of these centres imparts to us the proper feeling and also the sense of power which we have, when in health, in all the voluntary muscles of the body; while an organic lesion or a functional disturbance in the sensory-motor area will lead to feelings of numbness, tingling, pins-and-needles, and other abnormal sensations in any of the parts which are under the control of these convolutions. A similar centre regulates the sensibility of the viscera. A normal condition of this centre would thus impart to us the feelings of happiness, comfort, and well-being which we experience when in good health, and more especially when we are engaged in some mental or physical action which we enjoy, such as making a successful speech to a sympathetic audience, playing a game of skill in which we may be proficient, rowing, swimming, riding on a spirited horse, singing when we feel in good voice, &c. On the other hand, a disturbed condition of this centre would naturally lead to the perception of a great variety of odd, unpleasant, and distressing sensations, the peripheral perception

and localisation of which would depend upon the precise portion of the visceral centre which might be suffering, thus leading to distress in the head, heart, lungs, the abdominal or pelvic viscera. Ataxy—to use Sydenham's expression—of this centre *in toto* would bring about that general form of hypochondriasis of which I have spoken, and in which the entire visceral sensibility seems to be disturbed. Again, we may assume that the *degree* of the peculiar feelings which trouble the hypochondriac will be proportionate to the intensity of the disturbance affecting the centre in question.

The centre whose functions I have endeavoured to describe undoubtedly exists, although its seat has not yet been ascertained. Some physiologists would seek it in the gyrus fornicatus, others in the occipital lobes. In connection with this point we should remember that there is still extant a large *latent zone* in the cortex, more especially of the right hemisphere, which is, at the present day as it were, a kind of “no man's land,” and with the functions of which we are as yet unacquainted. Neither experimental physiology nor morbid anatomy has as yet given us any exact clues to the functions of this latent zone, in some portion of which the centre for visceral sensations may eventually be discovered. Up to the present time no pathological lesions have been found in the nerve-cells of the cortex in cases of hypochondriasis, although the extreme obstinacy of the symptoms in many cases would lead us to think that finer examinations of certain areas of the cortex, by Golgi's and Ramon de Cájal's methods, might perhaps reveal certain morbid changes, such as reversion to the foetal type, or an extremely insidious form of sclerosis, which might account for the more obstinate and intractable forms of the disease.

NOSOPHOBIA.

Nosophobia presents an altogether different clinical aspect. In this condition there are no painful or perplexing sensations referred to any of the bodily organs, but the distress is purely mental, being the fear of some malady which the patient believes will overtake him. The definition which Mendel has given of hypochondriasis as “a functional disease of the brain, the essential symptoms of which are fear and apprehension regarding one's own body,” applies, therefore, rather to nosophobia than to hypo-

chondriasis. A further striking difference between the two morbid conditions is that *nosophobia* is *essentially transitory*, while hypochondriasis is apt to be long-continued and is, indeed, frequently permanent. During the last great epidemics of influenza, I have met with a number of exquisite cases of nosophobia, that is, the fear of catching the prevailing infection. This condition lasted only as long as the epidemic remained at its height. A patient who has been off and on under my care for various manifestations of encephalasthenia, came to me one morning in a state of great terror and alarm, saying that he had been unable to do anything or to sleep for fear of getting the influenza, and asked me to give him a prescription for a preventive medicine. I did so, and joined with it such suggestions as appeared to me appropriate. He was then quite himself again for a few days, when one of his domestics was taken ill with the prevailing malady. This gave a fresh start to the nosophobia, and he became so upset that he left his home and took rooms at an hotel—by the way, the worst thing he could have done under the circumstances. A few days afterwards he suddenly left London and went to a seaside place, which at that time enjoyed the reputation of being free from the epidemic. He did nothing else there all day long but read the accounts of the progress of the epidemic in the newspapers, and felt utterly wretched and unfit for anything all the time. When the epidemic subsided he returned to town and laughed about the unnecessary fuss which he had made. Since that time he has had similar short panics about catching whooping-cough and chicken-pox, which had broken out in his family, but has otherwise been quite well and able to enjoy life.

Similar cases have occurred at all times during the prevalence of great epidemics, more especially when there was a cholera-scare. Nor is such a condition altogether insignificant or unworthy of our attention, for persons have occasionally died of it.

SYPHILOPHOBIA.

Apart from epidemics, nosophobia is chiefly seen in men who have acquired syphilis. In them the appearance of an acne-pustule on the sternum, or a slight laryngeal catarrh, or a feeling of soreness in the tongue, may lead to a short attack of nosophobia or, as it is sometimes called, syphilophobia. The

syphilophobist, however, is by no means always a hypochondriac, for he may be quite well and hearty when there are no such or similar exciting causes of fear as I have just mentioned. Indeed he speedily forgets his troubles when assured by his physician that the symptoms which have alarmed him are of no consequence, and have no connection with the diathesis of which he has previously suffered.

The discussion in the newspaper press of cases of disease occurring in some prominent person is likewise apt to give rise to temporary attacks of nosophobia in neurotic persons. When the late Emperor of the French was operated upon for stone by Sir Henry Thompson, the case was very largely discussed in the daily papers, and numbers of persons were seized with the fear that they might have or were going to have stone in the bladder. Similar occurrences have come under my notice when the cases of the late Crown Prince of Germany and the Czar of Russia attracted so much public attention. Such things die a natural death as soon as public interest is diverted from them, but while they last they are often a source of great misery to those who are thus easily influenced.

It is, therefore, seen that the attack of nosophobia is always owing to some definite exciting cause. When no such causes are active the patient is usually quite rational and not at all moody or depressed; but where predisposition for it once exists, the least unusual sign which may show itself in any part of the body may suffice to set the nosophobic machinery in motion. A congested conjunctiva, a little bleb on the tongue, a slight rash, a cough, a pain in the side, a throbbing in the rectum, a turbid urine, or a feeling of numbness in the limbs, may make such a person quite wretched for the time being, because he fears that he will be seriously ill and may die. As soon, however, as the symptom which alarmed him has disappeared, or when the doctor has succeeded in calming his apprehension by promising the speedy removal of the trouble, the patient generally forgets all about it and feels quite well and happy again.

THANATOPHOBIA.

Closely connected with nosophobia is a morbid fear of death, by which some persons are troubled all their lives. For this

condition Michéa has coined the truly barbarous name of *necrophobomania*, and considers that this fear of death constitutes the essence of hypochondriasis. This is a complete misconception, as there are numbers of persons who live in constant fear of death without being at all hypochondriacal. Many aged people, for instance, have habitually a fear of death, but without being subject to those distressing sensations which we have found to be characteristic of hypochondriasis, and without unduly brooding over the state of their health. For “necrophobomania” the term *thanatophobia* should be substituted, as more expressive and euphonious. Thanatophobia is not unfrequently met with in young persons, who are convinced that their death is at hand, and that nothing can save them. I have known a young man who for years never went to bed without thinking that it was going to be his last night, and who every night mentally took leave of his friends and belongings. In some of these cases, vicious habits contracted in early life have seemed to produce the condition, while in others no exciting cause could be discovered.

INFLUENCE OF SUGGESTION.

A further difference between hypochondriasis and nosophobia is that suggestion has generally little or no influence on the former, but has powerful effect in the latter condition. A nosophobist, who is afraid of having disease of the liver, because he has felt pain in the region of it, is, after a careful examination of that organ, delighted with the doctor's assurance that there is nothing serious the matter with him, and presently forgets all about it. An unfavourable prognosis, on the other hand, may drive such a man to despair. A patient of mine who had had protracted gonorrhœa, thought that he might have stricture, and consulted surgical authorities about this point from time to time. His urethra was perfectly sound, and he had been repeatedly assured that he had no stricture. On one such occasion, however, an eminent surgeon, who happened to be out of temper, told him roughly that, although he had no stricture, he had the nearest thing to it. This gave the patient a terrible shock, and as he considered his case to be hopeless, he determined to commit suicide. For weeks subsequently he required strict supervision, but eventually calmed down after repeated assurances that the

opinion which had upset him so much, was not seriously intended.

An unfavourable prognosis has hardly ever such an influence on the hypochondriac. On the contrary, such a patient is often quite pleased with it, partly because it corresponds to his own feelings of profound illness, and partly because he can boast of it to his friends, who may have expressed doubts about the reality of his sufferings. Nevertheless, I consider it wrong to give a hopeless prognosis even in confirmed cases of hypochondriasis, as is often done; not only because we should consider the patient's feelings, which may be still further depressed by such an opinion, but also because, even in apparently desperate cases of that disorder, an improvement, and even a fair amount of recovery, may take place. A favourable prognosis, on the other hand, has little or no cheering influence on the hypochondriac, because he is so much distressed by the incessant painful sensations to which he is subject, and habitually finds so little relief from the various modes of treatment which are used in his case, that he is quite convinced of the incurability of his illness, and considers a doctor who promises to cure him to be ignorant and presumptuous. Yet although our efforts to relieve the hypochondriac are so frequently unavailing, the doctor's visits have often all the same a good influence, for the patient is generally a little happier afterwards, from having relieved his mind to a sympathetic listener.

A final difference between the two conditions which we have considered is, that the nosophobist has absolute faith in his physician, and follows the treatment which is prescribed, in the most punctual and systematic manner; while the hypochondriac has generally a poor opinion of medicines, and frequently refuses to take those which have been ordered for him. He often says that most drugs are too strong for him, and more likely to do him harm than good. He therefore generally shirks taking his dose; and I have often thought that medicinal treatment might produce a better effect in such cases than it usually does, if it were more strictly followed.

TREATMENT.

There is, however, certainly no specific for hypochondriasis, and Brunner's remark, "*Magnus mihi erit Apollo qui hypochondriacum*

ad sanitatem reduxerit," is as true now as it was 200 years ago. Nervine tonics, such as arsenic, strychnine, phosphorus, and others, have generally only a temporary effect; while sedatives, such as bromides, hyoscyamus, and opiates, are habitually disappointing in their action. The constant galvanic current, which does so much good in encephalasthenia and some forms of hysteria, does not appear to benefit the hypochondriac in the same manner. Moral and hygienic treatment, indeed, often does more good than drugs. It is important to cheer the patient up with the hope of eventual recovery from his troubles, which, indeed, may happen after years of misery. Frequent change of air and scene, and distraction by society, are useful. It is essential to see that the secretions are kept in good order, and to enjoin great moderation in eating and drinking. In some patients a purely vegetarian or milk diet will do good; and in very obstinate cases a seton or issue in the arm may be used. A very influential agent in combating the hypochondriacal condition is active exercise; and amongst the various forms of exercise I would recommend bicycling and tricycling for the young, and riding on horseback for those somewhat more advanced in life. The exhilarating effects of the latter form of exercise are well described by one of our ablest novelists, who says: "I know few counsellors more exhilarating than a spirited horse. I do not wonder that the Roman Emperor made a consul of his steed. On horseback I always best feel my powers, and survey my resources; on horseback I always originate my subtlest schemes, and plan their ablest execution. Give me but a light rein, and a free bound, and I am Cicero-Cato-Cæsar; dismount me, and I become a mere clod of the earth which you condemn me to touch: fire, energy, ethereality have departed; I am the soil without the sun—the cask without the wine—the garments without the man!" Let us therefore by all means insist on this excellent practice being pursued by our hypochondriacal patients.

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TWO CASES OF ULCER OF THE DUODENUM IN WHICH LAPAROTOMY WAS PERFORMED, WITH REMARKS ON ULCERS OF THE DUODENUM.

By A. MARMADUKE SHEILD, M.B. Camb., F.R.C.S. Eng.

WRITERS on general medicine who refer to ulcer of the duodenum treat of the subject in general terms. The affection is classed with gastric ulcer, which in all respects it closely simulates, and little or no attempt is made to distinguish between the pathology or symptoms of these two kinds of cases. There is a general opinion that gastric ulcer is rare in men, and, therefore, when duodenal perforation occurs in the male sex the symptoms are peculiarly liable to be overlooked or entirely misunderstood, since they are identical with those of perforation of the stomach, which is so exceptional in the male sex. What is held by physicians of the present day regarding duodenal ulcer may be well summed up by quoting from the article on it in the 'American Text-book of Medicine,' edited by Pepper.* "Duodenal ulcer is usually single, but is occasionally multiple. In some cases it occupies partly the duodenum and partly the pylorus. In other instances distinct ulcers may be found in the stomach and duodenum. The disease may attend septicæmia, probably as the result of embolism. Severe burns are also at times productive of it, and freezing is said to act in the same way; while erysipelas, pemphigus, and amyloid degeneration of the bloodvessels of the intestines have also been claimed to be associated with it. The symptoms are in a great majority of cases identical with those of gastric ulcer, and it is then impossible to distinguish between the two lesions. An ulcer of the duodenum is probably present if the pain does not develop until some hours after eating food; if the position of this pain, together with tenderness on pressure, is situated decidedly to the right of the middle line; and if there are profuse bloody stools without vomiting or hæmatemesis. In other cases blood

* 'Text-book of Medicine,' by American Teachers, edited by Dr. Pepper, vol. ii.

may be vomited and passed by stool. In still others the course of the disease may be entirely latent." It will serve to make more clear the class of cases I especially wish to illustrate if I quote a typical instance, selected from several which are scattered about in medical literature. The case I will first draw attention to is related by the late Surgeon-Major Robinson of the Scots Guards.* A healthy and muscular guardsman aged 38 years, who was a "bandsman" and well able to perform his duties, played a game of racquets one afternoon and afterwards proceeded to a music-hall where he ordinarily performed. He was suddenly seized with violent abdominal pain. The abdomen became tympanitic, but there was no urgent vomiting. He was conveyed back to bed, collapse supervened, and he died in about 18 hours. At the necropsy the whole of the intestines were matted together and there was some greenish fluid in the abdomen. The bubbling of gas drew the attention of the pathologist to the duodenum, and an ulcer large enough to admit a crowquill was found about the centre of that viscus on its anterior aspect. This was not in the least suspected during life, but it is stated that the man had been known to complain of epigastric pain and to press his hand there after laughing loudly. The above abstract well exemplifies what usually happens in these most distressing and mysterious maladies, and the theory of death by poison may readily be started when the surroundings and concomitant circumstances are of a suspicious nature. Murchison relates such a case where a man died almost instantly from collapse; and a similar case is referred to by Perry and Shaw in their excellent article on Ulcers of the Duodenum in 'Guy's Hospital Reports' for 1894.

I was induced to bring the following two cases, which occurred in my own practice, before the Medical Society of London, because they so well illustrate the extreme difficulty that is met with in the diagnosis of duodenal ulcer, and because it is only by a relation of cases, and a collection and consideration of the experiences afforded by them, that we can hope to arrive at anything like proficiency in the management of a class of maladies so protean in their clinical manifestations and so generally unsatisfactory in their treatment. Moreover, the subject has been already dealt with at this Society, and it is hoped that this communication may extend and amplify information already acquired. The first case which

* 'Transactions of the Pathological Society of London,' vol. ix, p. 220.

forcibly drew my attention to the surgical difficulties and uncertainties which surround the subject of duodenal ulcer was as follows. (I am indebted to Mr. Harold, the medical registrar of Charing Cross Hospital, for the abstract notes of it.)

CASE 1.—A healthy-looking young man, aged 20 years, was admitted under the care of Dr. Green on November 30th, 1892. His previous history was of little importance. There was a vague account of some epigastric pains and flatulence, but while sitting at the theatre he was seized with severe pains in the abdomen “which doubled him up,” and he was brought to the hospital on the above date. It was then noted that he was in a condition of collapse. The skin was pale and covered with clammy sweat, the temperature 96° F., and the pulse 100, small and compressible. Severe abdominal pain was complained of, and the abdomen was distended. There was marked tenderness in the epigastric region. There was no vomiting as yet, and flatus was passed per anum. He was treated with morphia and bismuth. Towards the evening his symptoms got worse. The abdominal pain and distension were greater, and he vomited several times greenish, and subsequently stercoraceous, fluid, but no blood was noticed in the vomited matter. On December 1st, after a hypodermic injection, the patient had slept fairly well, but he had vomited several times, and the abdomen was very much distended. I saw him on December 2nd, the third day of his attack. He then had the appearance, and showed the usual symptoms, of one suffering from a serious abdominal malady, and his condition was obviously very precarious. The abdomen was enormously distended, and the main seat of tenderness seemed to me to be below, near the cæcal region. The diagnosis of perforative peritonitis was made, and the opinion expressed that the lesion was situated in the vermiform appendix. Not having seen the case from the commencement my mind was hardly enough impressed with the situation of the pain in the epigastric region in the early part of the case, and hence an error was made in the estimate of the position of the perforation. The abdomen was explored by the usual incision. To my disappointment the cæcum and appendix were found to be normal. The intestines were congested, covered with lymph, enormously distended, and the abdominal cavity full of purulent fluid and some gas without faecal odour. The incision was made nearly up to the ensiform cartilage, but nothing was made out, for the intestinal distension made examination very difficult, and the desperate condition of the patient forbade delay. The abdominal cavity was therefore washed out and closed. The patient, as is usual in such cases, died about 24 hours later, pulseless and collapsed. One could hardly say that the operation did him harm—it certainly failed in doing him any material good. At the *post-mortem* examination a perforating ulcer was found on the anterior aspect of the first part of the duodenum. The opening was circular in form, about the size of a threepenny-piece, and had thickened, callous edges. This was obviously the cause of the general peritonitis. All the other organs and viscera were healthy.

CASE 2.—This occurred in the person of a strong young man, aged 23 years, who was under the care of Dr. Whipham, at St. George's Hospital, on June 11th. He had been quite well until five days before admission, when he was seized with violent abdominal pains, vaguely

referred to the right side. He had vomited several times, but the bowels had opened twice. Three years ago he had a similar attack, and had got well. The significance of this latter statement will be seen further on. I saw him, with Dr. Whipham, soon after midnight. He looked fairly comfortable, but the pulse was very quick and the abdomen greatly distended. The hernial apertures were empty, and the rectum was devoid of feculent contents, but a sensation of fluid in the pelvis could be felt through it. No very marked tenderness could anywhere be elicited. When the patient was asked where his worst pain was situated he pointed to the right iliac region. Here also there was tenderness on pressure. Previously on the same night I had operated upon a case of a very similar nature and had found a perforation of the vermiform appendix, and I could not divest my mind of the belief that the present case was due to a similar cause, and thus again fell into error. I may, however, mention that the possibility of duodenal ulcer was actually present to our minds, and we discussed it. The abdomen was opened in the right linea semilunaris, and immediately enormously-distended coils of bowel showed themselves, deeply congested and covered with lymph. There was purulent fluid in the pelvis and bubbling of gas, but this was quite devoid of fæcal odour; its reaction to litmus paper was not ascertained. The cæcum and vermiform appendix were with some trouble examined, and were found to be normal. So great was the intestinal distension that I opened a prominent coil of jejunum by a small incision and drained away many basinfuls of feculent fluid. The incision was closed with a Lembert suture, and the collapsed bowel permitted free exploration of the intestine. Nothing could be found, and in reflecting upon the time that would be consumed by prolonging the incision with the view of finding an ulcer of the stomach or duodenum and repairing it, I reluctantly closed the abdomen and left in a glass drainage-tube, having well flushed out the abdominal cavity with warm water. This patient seemed at first much relieved, but on the evening of the day following the operation he had a recurrence of severe abdominal pain and soon died. At the *post-mortem* examination it was revealed that there was a small ulcer which would admit a quill on the anterior wall of the duodenum, about half an inch from the pylorus. The hole was rounded, with thick discoloured edges. At the same level with the ulcer which had perforated there was a depression about one-third of an inch in diameter, smooth, and the walls not undermined. This was evidently an ulcer which had healed. It was situated on the posterior wall of the duodenum.* There was general peritonitis, and a large cavity containing about two pints of brownish fluid was situated above the stomach and below the liver and diaphragm. The abdominal wound had united, and it is especially important to observe that the small incision made to drain the intestine had soundly healed in less than 24 hours, demonstrating the safety of the procedure of draining distended intestine.

Before proceeding to the discussion of the general question of duodenal ulcer, I will shortly quote abstracts of two cases strikingly similar to those first related, which demonstrate the fact that I do not stand alone in the diagnostic difficulties which surround per-

* *Post-mortem* and Case Book, St. George's Hospital, 1894.

forating ulcer of this part of the intestine. Perry and Shaw in their recent article state that laparotomy was thrice performed at Guy's Hospital for perforative ulcer of the duodenum, but the lesion was never found. Lockwood* relates the following cases of great interest in the 'Medical Society's Transactions.' The first was that of a young man, aged 28 years, who was suddenly seized with acute pain on the left side while drinking a cup of tea. This was thought to be an attack of colic, and treated accordingly. Vomiting and tympanites with complete obstruction supervened, but there was no hæmatemesis. On the third day an exploratory abdominal section was performed, and a quantity of foul-smelling gas escaped, while general purulent peritonitis was present. The whole intestine was examined, but no perforation was found. The distended gut was opened and drained, and the opening closed by a Lembert suture. The abdomen was flushed out. The patient died in seven hours. The chief focus of septic peritonitis was found below the liver, and upon the front part of the duodenum was a small oblong aperture, which gave exit to the duodenal contents. The second case was that of a man, aged 41 years, who, while at his work, was suddenly seized with violent pain in the abdomen, followed by complete constipation and sickness. The vomited matter was at first the contents of the stomach, but afterwards was stercoraceous. When first seen the abdomen was tympanitic, and no vermicular movements were detected. The countenance was anxious, and the man complained of severe abdominal pain. The pulse was 120 and the temperature 99° F. The abdomen was explored through the usual incision. Diffuse septic peritonitis was found, but although every region was searched, nothing could be found to account for its occurrence. The man died in 10 hours, and Dr. Galloway, who made the *post-mortem* examination, found the most intense focus of inflammation beneath the liver. The first part of the duodenum was perforated by an ulcer, which had sloping edges, situated about an inch from the pylorus.

The abstracts of these two cases clearly show that the diagnostic difficulty felt by myself, and illustrated in the instances I have narrated, is shared by other surgeons; and now that it is recognised that the prompt treatment of perforating gastric ulcers by

* 'Transactions of the Medical Society of London,' vol. xv, p. 91.

abdominal section saves life, the present time seems peculiarly opportune for drawing the attention of the profession to perforating ulcers of the duodenum, which so closely resemble them. It has seemed to me that the compilation of statistical tables as to the comparative frequency of duodenal ulcer, or of certain of its more marked clinical features, would be open to many sources of inaccuracy, and would serve little useful purpose. The undoubted fact that the scars of duodenal ulcers are sometimes accidentally met with *post-mortem*, shows that this condition may not infrequently be recovered from when perforation does not occur, and is a proof that many cases are accidentally overlooked. Perforating ulcer of the duodenum is no doubt a rare affection, and a proof of this statement is found in the observations of Norman Moore,* who finds that only three cases are recorded in the St. Bartholomew's Hospital *post-mortem* books between 1867 and 1882, a period of 16 years. Two of these occurred in men, and showed the usual features of sudden and unsuspected onset. In one of them the ulcer was not even suspected during life. It seems clear from the elaborate researches of Dr. Perry and Dr. Shaw, as well as from the perusal of these cases, that the ulcer is almost invariably found on the anterior surface of the first part of the duodenum. Out of 57 cases of rapidly perforating ulcer collected by them, the lesion was situated here in 48. I am greatly indebted to valuable assistance from Mr. Arthur Latham in looking up the question of the frequency of duodenal ulcers in the *post-mortem* books of St. George's Hospital. He finds that in 8,192 *post-mortem* examinations in the 31 years from 1863-1893, there were 116 cases of death from perforation of the intestine (from all causes save rupture); that is, 1·4 per cent. of total deaths. These 116 include 12 cases of perforating duodenal ulcer—that is, 0·14 per cent. of total deaths and 10·34 per cent. of all perforations.

* 'Transactions of the Pathological Society of London,' vol. xxxiv, p. 98.

Cases of Perforating Duodenal Ulcer.

| — | Year. | Sex. | Age. |
|----|-------|--------|------|
| 1 | 1892 | Male | 34 |
| 2 | 1891 | Female | 27 |
| 3 | 1890 | Male | 21 |
| 4 | 1889 | Male | 37 |
| 5 | 1887 | Male | 42 |
| 6 | 1883 | Male | 49 |
| 7 | 1882 | Female | 22 |
| 8 | 1878 | Male | 59 |
| 9 | 1875 | Male | 50 |
| 10 | 1875 | Male | 52 |
| 11 | 1871 | Male | 56 |
| 12 | 1871 | Male | 56 |

Out of these 12 cases 10 occurred in males and only two in females. The average age is 42 years. Out of the 116 cases of intestinal perforation, of non-perforating ulcers of the duodenum, or congestions threatening to perforate, there were found 23 instances which may be thus arranged: burn, with slight ulceration or congestion and early erosion, 7 cases; associated with renal disease, 6 cases; phthisis and tuberculosis, 2 cases; malignant ulceration, 1 case; associated with scirrhus of pancreas and liver, 2 cases; and associated with pleurisy, 1 case. The remaining four cases had no obvious causes. In nine of the 12 perforating cases the ulcer was situated anteriorly; in three the situation was not mentioned. I propose (1) to briefly consider the views taken by pathologists as to the formation of these ulcers and to illustrate their pathological terminations; (2) to pass in review their various clinical symptoms, illustrating my remarks when possible by abstracts of cases; (3) to discuss the appropriate treatment; and (4) to draw conclusions which may seem warranted by the present state of our knowledge.

It is well known that the formation of ulcers in the stomach and duodenum has long engaged the attention of eminent pathologists. Rokitsansky* regards tuberculous ulceration of the duodenum as very rare. He refers his readers for the pathology of perforating duodenal ulcer to his account of a like process

* 'Pathologische Anatomie,' vol. ii, p. 103.

occurring in the stomach.* He states his belief that these ulcers commence as an acute, circumscribed, red softening, or with a circumscribed sloughing of the mucous membrane. He speaks of the now well-known usual terminations by cicatrisation, perforation, hæmorrhage, permanent contraction, matting, and condensation of surrounding tissues. It will clear the way at the outset to exclude all causes of ulceration of the duodenum from without, as by gall-stones, the pressure of malignant growths, the slow erosion of an aneurysm, or a renal abscess or suppuration in connection with spinal caries.† Instances of all these conditions will be found scattered through pathological literature, but are hardly germane to the subject under consideration. Ziegler,‡ while looking upon the duodenal ulcer as essentially similar in its pathology to ulcer of the stomach, well points out that the latter ulcers, and therefore the duodenal ulcers also, may be caused by any kind of local injury of the mucous membrane which exposes it to the unchecked action of the gastric juice, not yet neutralised in the first part of the duodenum, where these ulcers usually commence. Probably the commonest causes of obstructed blood-supply, leading to necrosis of the mucous membrane, are venous engorgements, hæmorrhages, arterial anæmia from embolism, spasmodic contraction, or arterial sclerosis. What share such morbid conditions as cardiac and renal changes, alcoholism, syphilis, and Bright's disease may have in bringing about these conditions would be too wide an inquiry for the scope of this paper. A word, however, must be said as to the undoubted occasional association of ulceration of the duodenum with albuminuria and renal degeneration, as so ably pointed out by Dr. Dickinson. In the *post-mortem* and case book of St. George's Hospital for 1890 will be found four such cases where ulcers were found in the duodenum, and in one instance in the cæcum also, in association with the large white kidney and interstitial nephritis. The symptoms during life were vague, and the sickness and diarrhœa might well be attributed to other causes. Perry and Shaw found no less than 12 cases of ulcer of duodenum out of 70 associated with Bright's disease. There seems no distinct proof that albuminuria

* 'Pathologische Anatomie,' vol. ii, p. 30.

† Davies-Colley : 'Transactions of the Pathological Society of London,' vol. xxxvii, p. 561.

‡ Ziegler's 'Pathologische Anatomie,' pp. 471 and 459.

is associated with the rapidly fatal perforating ulcer which we are principally considering, though of course it may be a predisposing cause.

The association of ulcer of the duodenum with burns and scalds has long occupied the attention of pathologists. It is very remarkable that modern investigators have cast doubts upon this association, and there can be no question that this phenomenon is much rarer now than was formerly the case. Curling's well-known paper in the 'Transactions of the Royal Medical and Chirurgical Society' * relates 10 cases of this lesion associated with burn, while Hewitt still earlier † found three instances of ulceration of the duodenum in 17 fatal cases of burn examined at St. George's Hospital between the years 1844 and 1846. So Holmes, ‡ writing in his 'System of Surgery,' relates 16 lesions of the duodenum in 125 cases of burn. The age of the patient and the period of death varied extremely. The appearance, says the latter writer, is that of a perfectly indolent ulcer. It is usually situated just below the pylorus; often there are two or three close together. They look as though a portion of the mucous membrane had been cut out. This writer also refers to the frequent absence or vagueness of symptoms, and where severe manifestations, as melæna, hæmatemesis, and signs of perforation, occur he seems to think the prognosis highly unfavourable. Curiously enough, from an early period doubts commenced to be thrown upon the association of duodenal ulcer in association with burns. Thus Wilks, § writing soon after Curling, made a careful examination of 12 fatal cases of burn and found no lesion in the duodenum. He contrasts his experiences with those of Curling, but gives no explanation of the discrepancy. McCarthy, || relating a fatal case of duodenal ulcer from vomiting and hæmatemesis in a girl aged 7 years, states that this complication is rare at the London Hospital, only one case besides the one he mentions having occurred for eight years. Lockwood has recently been investigating this subject, and I have his authority for stating that out of 138 fatal cases of burn occurring in the last nine years at St.

* Vol. xxv, p. 261, *et seq.*

† 'Transactions of the Royal Medical and Chirurgical Society,' vol. i, p. 259.

‡ Holmes' 'System of Surgery,' vol. i, p. 394.

§ 'Guy's Hospital Reports,' 1856.

|| 'Transactions of the Pathological Society of London,' vol. xxv, p. 120.

Bartholomew's Hospital, only one had ulcer of the duodenum, although the pathologist had obviously been on the alert to detect duodenal lesions. Perry and Shaw, in the 'Guy's Hospital Reports' for 1894, found five cases of duodenal ulcer in 149 cases of burn. In reviewing all the cases of burn ulcer, they find it more frequent in females than in males; this they ingeniously attribute to the burnt surfaces being usually, from the arrangement of the clothes, more extensive. Quite recently also some of the more advanced of the younger school of pathologists have stated disbelief in the relationship between burns and duodenal ulcers. The conclusion is irresistible that some surgeons, especially in former times, had experience of a condition which now seldom exists. The explanation is probably in the direction of sepsis, and the improved methods of cleanliness at present in vogue regarding the treatment of burns. The profuse diarrhœa which accompanies extensive and dirty burns is very suggestive in this respect, and so are the patches of hæmorrhagic congestion and inflammation so often found in these conditions through the small intestine. It is easy to understand that if one of these patches occurred in the first part of the duodenum, the unrestrained action of the powerful gastric juice, not yet neutralised by the bile, might readily cause rapid ulceration and perforation. It is striking that ulceration of the duodenum should also have been found in cases of frostbite.* Samuel Adams, an assistant surgeon in the United States Army, relates the case of a private aged 36 years, who was confined in the guardhouse awaiting his trial by court-martial, when both his feet became frostbitten, and when first seen gangrene had already set in. After being in the hospital for a week diarrhœa ensued, with rapid exhaustion. The line of demarcation formed, but the patient died exhausted in about three weeks. At the necropsy the duodenum was found covered with small irregular ulcers with rough serrated edges extending in different directions. It will be observed in connection with this case that the conditions found in bad burns of sloughing and septic tissues were present, and the explanation is probably the same—namely, an infarction of the vessels of the mucous membrane due to septic emboli, and the consequent unrestrained action of the gastric juice. *Post-mortem* examinations upon cases of septic ulceration after frostbite have not been very frequent, or possibly duodenal ulcer may have

* 'American Medical Times,' Feb. 28th, 1863.

more commonly been found. That ulcers of the duodenum in such septic conditions as burns are due to septic embolism of some small vessels in the intestinal walls, seems a more rational explanation than the old theory of hyperexcitation and inflammation of Brunner's glands. Looking upon such embolic processes as almost accidental, it is easy to understand how several cases may occur in the experience of one surgeon and none in the experience of others, and hence very erroneous estimates may be adduced as to the comparative frequency of duodenal ulcer after burns. There is one point which it seems to me is not sufficiently thought upon regarding the formation of duodenal ulcers, and that is the probability of their origin in actual traumatism of the intestinal coat by some hard or irritating substance, such as a piece of bone which escapes stomach digestion. In this way, it seems to me, are best explained those mysterious cases where the first symptoms are those of perforation, and which occur in healthy young adults. Professor Axe, of the Veterinary College, states, however, in a letter to me upon the subject, that though he has made hundreds of *post-mortem* examinations upon the carnivora generally, he has never observed a death from perforation of the duodenum. While rectal ulcers are not uncommon, all writers on ulceration of the stomach and duodenum agree on the comparative frequency of duodenal ulcers in young males. I can hazard no explanation of this very curious fact, unless it be the greater frequency of haste in eating and "bolting" indigestible food, but its clinical significance is of the first import. Trier, of Copenhagen, who wrote a very comprehensive paper on this subject,* collected 26 cases of perforating ulcer of the duodenum from the records of the Frederik's Hospital. He also collected a number of cases from other sources numbering altogether 261. He found that the ulcer was situated in the duodenum in 10·7 per cent. of cases, and he concludes that the ulcer most generally occurs about the age of manhood, the average being about forty-two and a third years. A striking similarity has been observed in the Guy's Hospital and the St. George's Hospital estimate. Brinton,† in discussing the large number of 654 cases of ulcer of the stomach and duodenum, makes the proportion of stomach ulcer in females over males as two to one. Trier finds that the ulcer of the duodenum is found

* 'British and Foreign Medico-Chirurgical Review,' p. 157, 1864.

† 'Diseases of the Stomach.'

five times more frequently in males than in females.* Perry and Shaw conclude that, excluding burns, duodenal ulcer is three times as common in males as in females. Moore's cases† show a contrast to those of Brinton, for out of 13 cases of gastric ulcer reported by him, occurring in a period of 12 years, 10 occurred in males and three in females. There was only one case of ulcer of the duodenum, and this was, as usual, in a male, a young man from Lewes, about 20 years of age, who for several weeks had severe pains about two hours after taking food. After a meal of pickled salmon, very violent abdominal agony came on, and he died collapsed in 14 hours. The association of ulceration of the duodenum with malignant disease would appear to be very exceptional. Bristowe, in describing the pathological appearance found in a case of general cancer, found a perforating ulcer of the anterior surface of the duodenum, close to a cancerous mass the size of a pigeon's egg. The ulcer seemed to have no direct connection with the growth, but the latter probably acted by lowering the nutrition of the part. In the list of affections of the duodenum collected by Latham there are three in relation with malignant disease.‡ Typhoid ulcers in the duodenum and the ulcers associated with anthrax or pemphigus are among the rarities of pathology, and need not here be further discussed.

I will now consider the pathological terminations of duodenal ulcers. The ulcer which I am especially considering, and which may well be termed "latent," goes on to rapid perforation and death. Ulcers which are more chronic in their course may exhibit a large number of different terminations and conditions. In a considerable number of cases the ulcer erodes into the pancreas and some large vessel, the patient dying from hæmatemesis. This is a peculiarly common termination of the duodenal ulcer after burns, and most of our museums contain specimens to illustrate it. Duodenal ulcers may cicatrise and the gut recover its normal functions. On the other hand, the calibre of the bowel may be seriously lessened and contracted. Thus Lange§ relates the case of a woman who, after suffering from great mental troubles in digestion disturbances, passed blood in the stools and

* 'British and Foreign Medico-Chirurgical Review,' p. 160, 1864.

† 'Transactions of the Pathological Society of London,' vol. xxxi, p. 110.

‡ *Ibid.*, vol. xxi, p. 356.

§ 'Annals of Surgery,' p. 588, 1893.

exhibited symptoms of gastric ulcer, for which she was treated. Eight years after she was operated upon for stricture of the pylorus, as she vomited constantly and had a dilated stomach. The pylorus was normal, but the duodenum was so narrowed about an inch from the pylorus as barely to admit a lead pencil. The stricture was divided and stretched and the patient made a good recovery. When a chronic ulcer of the duodenum threatens to perforate, such matting and condensation of the tissues may surround it, that the appearance and symptoms of cancer are closely simulated. Billroth is said to have excised the pylorus for cancer when simple ulcer was really present. A specimen of ulcer of the duodenum, where the symptoms closely resembled cancer, occurring in a man aged 36 years, is related and described by Gairdner.* Stricture of the bile-duct with persistent jaundice caused by the cicatrization of chronic duodenal ulcer is sufficiently well known not to need further mention here. An exceptional association of stricture of the duodenum after cicatrised ulcers is the formation of hernial-like pouches in the immediate vicinity. Specimens of this pouched condition of the bowel have been exhibited and related by Charlewood Turner.† He attributed the conditions found to spasmodic contractions of the bowel in the vicinity of the stricture. I have already referred to the fact that tuberculous ulcer of the duodenum is considered rare. A case is, however, related by Murchison,‡ where a simple ulceration of the duodenum was followed by tuberculous mischief in the lungs. Two of the cases from the St. George's Hospital *post-mortem* books are noted to be in association with tuberculosis ulceration into the portal vein with profuse hæmatemesis, and death is an exceptional termination, noted by the late Dr. Habershon.§ Perhaps the rarest termination of duodenal ulcer is a communication with the colon. Murchison|| speaks of this very exceptional condition, and a case of it is related by Saunderson¶ in the person of a man aged 30 years, who was admitted into the Middlesex Hospital complaining of excessive pain in the epigastrium and

* 'Transactions of the Glasgow Pathological and Chirurgical Society,' vol. iii.

† 'Transactions of the Pathological Society of London,' vol. xxxv, p. 201.

‡ *Ibid.*, vol. xx, p. 174.

§ *Ibid.*, vol. xxvii, p. 155.

|| 'Edinburgh Medical Gazette,' pp. 4 and 127, 1857.

¶ 'Transactions of the Pathological Society of London,' vol. xiv, p. 174.

vomiting a brown pultaceous liquid. He had had four similar attacks with severe pain after meals. The ulcer in the first part of the duodenum was found to communicate with the colon.

This brief consideration of the pathological terminations of duodenal ulcer will serve to illustrate how various must be the clinical symptoms they present, according to whether adjacent vessels, nerves, or viscera are implicated. A conjectural diagnosis is usually only warranted, and clinically it is probably impossible to distinguish them from pyloric ulcers unless such symptoms as obstructive jaundice or the pain coming on some two or three hours after food should point to the duodenum. Ulceration of the duodenum may be exceedingly chronic. Thus Arnold, in the 'Boston Medical and Surgical Journal,'* reports the case of a man who for six or eight years had suffered from such symptoms as epigastric pains, cramps, nausea, and vomiting. His meals were retained without pain, but about four hours later he used to have pain and vomit. If nothing was eaten he would occasionally vomit a quantity of whitish sour liquid. Hæmatemesis with blood in the stools preceded his death, and an ulcer was found in the first part of the duodenum, eroding the pancreatico-duodenal artery. The hæmorrhage in the stools and in the vomit may readily give rise to an erroneous diagnosis. Mr. Leopold Hudson, of the Middlesex Hospital, informs me that he performed a necropsy on a man aged 42 years in the year 1889. This patient had suffered during life from repeated intestinal hæmorrhage, which was believed by some eminent physicians to be due to cirrhosis of the liver. At the *post-mortem* examination the liver was found to be normal, as was also the stomach; but on the anterior wall of the duodenum, just beyond the pylorus, a large solitary ulcer was found. The floor was formed of very little more than the peritoneal coat, the edges were clean cut, and the open mouth of a small artery was apparent. There was no appreciable thickening of the surrounding tissues, and there were no adhesions. As regards the treatment of these more chronic cases of ulcer of the duodenum, when medical measures fail it becomes a question whether an exploratory abdominal section should not be performed. Thus a communication may be made between the dilated gall-bladder and the small intestine when the duct is obstructed by a

* Vol. xcvi, p. 407.

cicatrised ulcer. The following case, related by Codivilla,* shows that chronic duodenal ulcer, accompanied by distressing symptoms, is amenable to surgical treatment. A man aged 40 years had for 15 years suffered with pain in the epigastrium,—coming on five or six hours after dinner and attaining its maximum during the night. There was also daily vomiting, the vomited matter containing acid and bile and blood. Blood was also passed per anum. Every variety of medical treatment had been tried without avail. At the urgent request of the patient an operation was performed. No lesion was found in the stomach, but two fingers' breadth below the pylorus the duodenum was transformed into a hard mass five centimetres long with numerous adhesions. A coil of the jejunum was picked up and sutured to the stomach. The patient recovered well and increased in weight. Five months afterwards he was able to resume work. He still notices a dragging sensation at the situation of the scar, and only then has vomiting, but he has vomited no more blood. Codivilla claims priority for treating duodenal ulcer in this way, and points out that gastro-jejunostomy gives the portion of diseased bowel rest and lessens the dangers of perforation or hæmorrhage. But few cases exhibiting chronic symptoms will probably be treated by the surgeon, though the excision of a chronic ulcer and suture of the bowel are obviously well within the range of modern operators.

The symptoms and diagnosis of the acute perforating ulcer must next engage our attention. In a considerable number of cases the ulcer is absolutely latent, resembling gastric ulcer in this respect. A patient is suddenly seized with agonising abdominal pain, rapid tympanites ensues, and he dies in 18 or 24 hours in profound collapse. There may or may not be vomiting. In other cases there is a tendency towards encysting of the extravasated material and the formation of a sub-diaphragmatic abscess. In the majority, the symptoms are primarily epigastric or in the right hypochondrium, and this, if it can be clearly elicited, is a diagnostic point of the first importance. In a certain proportion of cases the patient will tell us that he has had similar attacks before, or has had pain and vomiting some hours after meals, again drawing attention to the epigastric region. There is one source of error here. When the intestine is perforated, the patient often refers his pain to the

* 'Colonial Quarterly Journal of Medicine and Surgery.'

patch of peritoneum first inflamed by the contact of the septic fluid. Thus it happens that in a perforation of the cæcum the pain may be attributed to the centre of the abdomen, and in perforation of the duodenum the extravasated contents, flowing towards the pelvis, may first inflame the peritoneum in that locality. A case is related by the late Dr. Barclay* in which it is expressly stated that intense pains occurred on pressure, and were referred to the lower part of the abdomen, and the same point is observed in one of the cases I have related. The violent colicky pains attendant upon perforation of these ulcers render the case very likely to be mistaken for lead colic, especially when they occur in the person of a painter. Thus a case is related by Wadham,† where a painter aged 56 years was admitted into St. George's Hospital suffering from violent abdominal pain. He was writhing about, but pressure gave him slight relief; and he had a well-marked blue line on the gums. He was treated for lead colic, but vomited several times, and died 14 hours after admission. At the *post-mortem* examination a small clean-cut ulcer was found on the anterior surface of the first part of the duodenum. In these cases the progressive abdominal distensions and vomiting, and the usual signs of grave abdominal mischief should warn the practitioner, but the mistake is one that may readily be made. In like manner confusion may arise between perforation and intestinal obstruction. The distinctions between these conditions are discussed by numerous writers, and I would now content myself with only pointing out the primary importance of getting a sense of fluctuation per rectum, as indicating free fluid in the pelvic cavity. In perforative peritonitis occurring suddenly in either sex with a clear history of epigastric or right hypochondriac symptoms, as previous pain and vomiting, or primary occurrence of the pain about the epigastrium, with tenderness on pressure, the perforation is likely to be in the duodenum in males, or near the pyloric end of the stomach in females; and in such cases it seems to me best to make an incision over the affected area. The character of the fluid that escapes may give most important aid. In perforations of the cæcum the pus is often foul, and the puffs of gas which escape distinctly fæculent. In ulcers of the duodenum this would probably

* 'The Lancet,' March 18th, 1871.

† *Ibid.*, Feb. 18th, 1871.

not be the case, and though one can hardly argue from two instances, the cases I have related show the absence of any fæculent smell or odour in the abdominal contents. This may prove to be a valuable diagnostic sign in the future, and I would here draw prominent attention to it. The reaction of the fluid in the peritoneal cavity should of course be acid in cases of perforation of the first part of the duodenum, but the peritoneal exudation must be excessive and would soon neutralise any acidity, so that this test will not stand universal adoption. Nevertheless, acid fluid was found in one of the Guy's Hospital cases related by Perry and Shaw. A word must here be said concerning the researches into the diagnosis of intestinal perforation by Senn, of Milwaukee.* This authority points out that if the stomach be distended with hydrogen gas and a perforation exists, the gas passes into the peritoneal cavity, distends it, and the liver dulness disappears, which he considers diagnostic. I would point out that disappearance of liver dulness is not unknown in excessive tympanites, and that therefore I can hardly assign the same weight to this test as expressed by the distinguished American surgeon. The escape of bubbles of gas on pressure when the abdomen is opened may lead one directly to the source of perforation. This symptom was of marked aid in the case related to this Society last year by Mr. Percy Dean,† in which that surgeon demonstrated the feasibility of resection of a duodenal ulcer and suture of the bowel, his patient recovering. Similarly, Mr. Pearce Gould related a case at last year's meeting of the British Medical Association where a young woman aged 20 years, after a meal of fruit, was seized with severe pain in the right hypochondrium, with subsequent collapse and vomiting. Twenty-six hours after the onset of acute symptoms he operated, and as there was nothing to indicate the seat of the perforation, he opened the abdomen below the umbilicus. Gas and acid fluid escaped. So, having rapidly explored the generative organs and vermiform appendix, Mr. Gould cut down on to the stomach above the umbilicus, and immediately exposed a small perforation in the duodenum. This he excised, carefully sutured the wound so made, and having flushed out the peritoneal cavity, closed the laparotomy wounds, leaving a glass drain in the lower incision. At the close

* Senn's 'Abdominal Surgery,' p. 249.

† 'Trans. Med. Soc.,' vol. xvii, 1894.

of this operation the patient was in a state of profound collapse, being very nearly pulseless at the wrist. Thirty-two ounces of saline solution were injected into one of her veins, and he had the satisfaction of seeing this collapse pass off to a considerable extent. Nevertheless, nine hours later she died; and at the *post-mortem* examination he found that the duodenal suture was firm, that no water escaped from the bowel even under considerable pressure, but that there was general peritonitis. "It was no satisfaction to me," Mr. Gould remarks, "no benefit to my patient, that the suture was firm, while her peritoneum had been left foul. It was only a surgical illustration of the vulgar proverb which cautions us against closing the stable-door when the steed was stolen." I have made in the *post-mortem* room of St. George's Hospital a series of observations on the best position for placing the incision in the abdominal parieties in supposed mischief about the duodenum. The incision in the median line does not give free access to the right hypochondriac region, and one can easily conceive that it might be difficult to detect and to suture a duodenal ulcer through it. In like manner, an incision in the right linea semilunaris appears to be too far external to give access to the pylorus and first part of the duodenum. A vertical incision four to five inches long, according to the thickness of the parietes, from the right eighth cartilage downwards, two inches to the right of the median line, is in the majority of instances over the duodenum. Such an incision enables one to explore the pylorus, duodenum, gall-bladder, and under surface of the liver, and through it an ulcer on the anterior surface of the duodenum could be easily reached. I would draw attention to the immense advantage of holding asunder the margins of the abdominal wound in this and similar proceedings by means of stout silk loops passed through the parieties. By this means exploration can be most thoroughly managed, and the manœuvre greatly facilitates the return of distended bowel. I would also venture to express my opinion that the secret of success in these cases is the complete after-cleansing of the peritoneal cavity. Mr. Gould strongly expresses himself regarding this point, but I cannot now enter into this subject beyond stating my belief that our present methods are by no means sufficiently complete and elaborate.

In conclusion, I would draw attention to the following points, which seem clear from a perusal of the published cases of this

affection:—1. That in perforative peritonitis there is nothing to point to the duodenum as the site of lesion unless it is clearly made out that the onset of pain was in the epigastrium or right hypochondrium; or that previous epigastric symptoms, as pain and vomiting, had occurred. Great care should be taken over the investigation of this part of the history, which is most vital and important. 2. That, considering the frequency of duodenal ulcer in males, the possibility of this affection should always enter the minds of surgeons who are called to a case of perforative peritonitis occurring in a man. 3. That the non-fæculent and sometimes acid nature of the extravasated fluids and gas may serve as a most important diagnostic aid, and the incision may be made small, as an exploratory effort only, until this vital point is made clear. When once the surgeon has made up his mind that the exudation is non-fæculent, and especially if it be acid, the region of the stomach and duodenum should be explored without loss of time. 4. In severe shock it is perhaps well to wait for a few hours. The peritoneum must be most energetically washed with warm water, and a drainage-tube placed in the pouch of Douglas would probably be of utility. The injection of salines into the veins may also be beneficial.

ADDITIONAL CASES OF PERFORATING ULCER OF THE DUODENUM.

By C. B. LOCKWOOD, F.R.C.S. Eng.

FOR the successful treatment of perforating ulcer of the duodenum many additions to our knowledge are required. Every case of this strange malady ought to be recorded, especially those which receive surgical treatment. Hitherto all of these have ended fatally until Mr. Percy Dean* brought one to a successful issue. I now propose to describe briefly a case which, although fatal, has afforded me some encouragement, and another in which the symptoms were so anomalous and misleading that a diagnosis could not be made. I have elsewhere described two other cases in which I performed laparotomy for diffuse septic peritonitis due

* 'The Lancet,' May 12th, 1894, and the 'Transactions of the Medical Society,' vol. xvii, 1894.

to perforating ulcer of the duodenum.* The following are the brief notes of the case in which the symptoms were misleading:—

CASE 1.—The patient was a man 28 years of age, an omnibus conductor. He had always had good health until May last, when he began to feel unwell, but with no definite complaint. On July 4th he was seized with sudden pain in the abdomen whilst ascending his omnibus, and felt sick. An emetic was administered by a druggist, which made him vomit. His bowels failed to act, although enemata were ordered by a medical man, until July 8th, when an enema brought away some lumps of fæces and a little flatus. On July 10th he was admitted into St. Bartholomew's Hospital. When I saw him he looked a strong and vigorous man; but his expression was anxious, and he tossed about restlessly. He obviously had acute intestinal obstruction. He vomited occasionally, passed neither flatus nor fæces, and his abdomen was distended. The swollen coils of intestine could be seen bulging the abdominal wall, and they were motionless. The right iliac region was very tympanitic, and the cæcum was evidently distended with gas. Above the pubes there was a dull and fluctuating swelling, which felt like a distended bladder, but was situated rather towards the left side. This swelling was also felt in the rectum, and fluctuated freely in all directions. When a catheter was passed the bladder was empty. The abdomen was tender all over, but not more so in one place than in another. The temperature was 99·8° F., the pulse 104, and the respiration 28 per minute, chiefly thoracic, but with slight abdominal movement. The diagnosis of septic peritonitis, with an accumulation of pus in the pelvis, seemed to me to be certain. Although the patient's mind was clear, I could learn nothing as to the cause of his illness. Having twice performed laparotomy and afterwards found perforating ulcers of the duodenum, I had that affection clearly in my mind. But the patient said that he had never vomited either food or blood, nor had he ever voided blood. Although he had occasionally had indigestion, the attacks had been slight. He had never had a definite pain in any part of the abdomen. He was quite unable to localise the pain which seized him suddenly at the beginning of his illness. There was absolutely nothing to point to anything in the upper part of the abdomen; therefore I opened the abdomen below the umbilicus. Quite a couple of pints of purulent and offensive fluid were let out of the pelvis. The cæcum, vermiform appendix, and small intestines had no holes in them. It seemed quite unreasonable to carry the wound upwards, because the higher I searched the less peritonitis was found. The abdomen was irrigated and drained, and the wound closed. He was for a time much relieved by this operation, and his temperature became normal, but afterwards the septic peritonitis made fresh headway, and he died 54 hours after the operation, the temperature having gradually ascended to 102·2°.

Necropsy.—At the *post-mortem* examination the abdomen might have been divided into three zones. In the lower was the area of septic peritonitis which I had attacked; in the middle was a wide zone almost free from peritonitis; and, lastly, there was beneath the liver an upper zone in which there was much septic peritonitis. This had evidently spread from a large abscess between the duodenum and the neck of the gall bladder. This abscess communicated by a long suppurating

* 'Transactions of the Medical Society,' vol. xv, 1892.

track with the interior of the duodenum. The opening into the duodenum was by an ulcer half an inch in diameter situate three-quarters of an inch from the pylorus and in the upper part of the duodenum. There was a second and smaller ulcer at the pyloric ring. It had eaten as far as the muscular coat, and was accompanied by some cicatricial contraction. Neither Mr. Berry nor myself could see how the upper zone of the septic peritonitis had communicated with the lower. Beyond what has been described, the body was quite healthy. In giving these brief details I have been greatly helped by Mr. Maxwell's admirable notes.

Remarks.—The course of events in this case seems to be fairly clear. Doubtless during May and June, when the patient felt unwell, the ulcers formed. Whilst ascending his omnibus the large one perforated, and a localised peritonitis occurred beneath the liver, in a locality rather favourable to localisation. Next, in some unknown way, pus or intestinal contents gravitated into the pelvis (without leaving a trace in the middle zone of the abdomen) and caused the extensive peritonitis and abscess which led me to think that, whatever the cause of the disease might be, it was situated low down and not high up. The total absence of clinical signs of disease above heightened this delusion. Although the ulcer was hard to define, owing to the abscess and peritonitis, yet I have come to the conclusion that it could have been found and closed.

The following case is one in which I succeeded in such an attempt. The situation of the ulcer and perforation were approximately diagnosed; laparotomy was performed, and the ulcer was easily found and closed. The operation ended fatally in 57 hours, from causes which might, perhaps, with better knowledge, have been averted :—

CASE 2.—The patient was under the care of Dr. West, for whom I operated. He was a thin, worn, anæmic man, 61 years of age. He had grey hair, sharp features, and was evidently not a good subject for a severe operation. He had been treated by Dr. Roberts and Mr. Segundo as a casualty patient for a chronic gastric ulcer, with the usual pain and vomiting after food, but without hæmatemesis or melæna. On September 12th, 1894, at 9.45 a.m., whilst at work, he was seized with a sudden pain in the abdomen, which he located beneath the right costal cartilages. He became faint and ill, and was unable to relieve his bowels. When I saw him at 2 p.m. he was profoundly collapsed, with a rapid, feeble pulse, cold extremities, and a clammy sweat. The temperature had been 95° F., but rose to 98° before the operation. The patient complained of an agonising pain in the upper abdomen, and said it was worst in the right hypochondrium. With these symptoms and history I had no hesitation in opening the abdomen. To prepare him for the operation, brandy and strychnine were given, the latter subcutaneously and the former by the rectum. He was also placed upon a hot water-bed, and all the appliances were kept thoroughly hot. An incision 6 inches long was made above the umbilicus and a little to the left of the middle line to avoid the falciform ligament. Some flatus and opaque fluid at once escaped, and, partly guided by the stream of fluid and partly by the touch, a small perforating ulcer was found upon the front of the duodenum, about three-quarters of an inch from the pylorus. Mr. Wilson, the house surgeon to whom I am much indebted for most efficient help, pulled the

pylorus slightly to the right, and then there was no difficulty in closing the ulcer with four Lembert's sutures. At this stage I was greatly helped by a device taught me by Mr. Marmaduke Sheild. The edge of the wound was retracted to the right by a strong silk ligature passed through all its layers. The operation lasted 35 minutes. It was completed by washing out the abdomen, especially the right flank and the pelvis, with water at a temperature of 112° , and a glass drainage-tube was put in and the wound closed. At the beginning of the operation Mr. Buttar gave a little chloroform and afterwards went on with ether. At its close an enema of brandy and a little opium was given, and the patient was conveyed to bed surrounded with hot-water bottles. He soon revived and was free from the agonising pain. He was fed every three hours with nutrient enemata. On September 13th he slept for four hours and took champagne by the mouth. His bowels acted after one of the enemata. On the 14th he seemed to be better and we entertained hopes of his recovery, but towards evening his pulse failed, he became unconscious, and died at 12.45 a.m. on September 15th, after having vomited 15 ozs. of bright coloured blood.

Necropsy.—At the *post-mortem* examination Mr. Berry found the sutured ulcer firmly closed and able to bear a strong pressure of water. It was eleven-sixteenths of an inch long by seven-sixteenths of an inch broad. There was a second ulcer of the same kind and of the same size upon the back of the duodenum. It had eaten as far as the peritoneal coat and made the bowel translucent. Both ulcers were just beyond the pylorus. The neighbouring mucous membrane was congested. It was clear that the patient had died from septic peritonitis, set up by the contents which had escaped from the duodenum before the operation. There was a good deal of purulent fluid and lymph behind the right lobe of the liver and in the pelvis. The lesser sac of the peritoneum and all the other organs were healthy. The source of the hæmorrhage was not discovered. I am indebted to Mr. Segundo's clear notes for most of these particulars.

Remarks.—The above leaves a doubt in the mind as to whether the abdomen was efficiently washed out. The whole abdomen was so slack and so easy to reach that when washing it out I thought the pelvis and left flank had been reached. The question of draining the pelvis was fully entertained, but dismissed because the washing out seemed efficient. However, in another case I should drain the pelvis. It could hardly make the prognosis worse, and would not only help the washing out but would also prevent an accumulation. The corners about the liver also seem to demand more attention. Nevertheless, it must be owned that a man 61 years of age, whose condition is well-nigh desperate, cannot offer much resistance to peritonitis when once it has begun.

In March, 1892, I made a *post-mortem* examination upon the body of a man who had been under the care of Mr. Langton, who, with his usual kindness, has allowed me to refer to it. The patient was 56 years of age, and had been brought into St. Bartholomew's Hospital with a distended abdomen and the usual signs of acute intestinal obstruction. There was nothing which pointed to a lesion in the upper part of the abdomen. The previous history was obscure. At the operation an inguinal hernia on the right side was explored, but nothing was found.

The incision was, therefore, carried upwards and outwards for 7 inches, and the cæcum and neighbouring peritoneal cavity were explored. A quantity of purulent and feculent fluid and other signs of septic peritonitis were found, but the man was too ill to allow the source of these to be discovered. He died a few hours after the operation. At the *post-mortem* examination I found general septic peritonitis with much feculent fluid in the loins and pelvis. The lesser sac was much inflamed, and lymph and purulent fluid were present. Upon the front of the duodenum, half an inch from the pylorus, was an ulcer three-quarters of an inch long and half an inch wide, with its long axis parallel to the pyloric ring. This was perforated and was the cause of the peritonitis. Its edges were clean cut, and the tissues in its vicinity were apparently normal. It could easily have been sutured. There was much lymph around the ulcer, upon the under surface of the liver, and upon the front of the duodenum. The other organs were healthy. I am indebted to Mr. Fraser for help in obtaining the notes of this case. Amongst other things this case suggests that it may be necessary to wash out and drain the lesser sac. This could best be done by tearing through the great omentum below the stomach. An exploration through Winslow's foramen might determine the necessity for this step, which, after all, is not a very serious one.

In concluding the notes of these cases it is interesting to remark that in one the ulcer was easily and securely closed, and the patient's life prolonged rather than shortened, and that the other ulcers could likewise have been closed had they been diagnosed. So far as can be judged, in anomalous cases the diagnosis can as yet only be correctly made through an incision. A small exploratory incision through the linea alba above the umbilicus is such a trifling addition to the risks of such cases, that it seems to be reasonable in future to try it. The kind of case would be one in which laparotomy had shown that diffuse septic peritonitis existed in the lower abdomen, with no recognisable or probable cause there.

Dr. HECTOR MACKENZIE mentioned two cases which illustrated several points referred to by the authors. His first case was one sent into hospital for symptoms like those of intestinal obstruction. They, however, came to the conclusion that it was a case of peritonitis, and he thought that most likely it was a case of perforation of the appendix. Mr. Croft performed laparotomy and found general diffuse peritonitis, but, as in

Mr. Sheild's case, no affection of the appendix was discovered. The operation lasted some time and the patient became collapsed, so that further examination was not made and the abdomen was closed. That case turned out to be an ulcer of the duodenum. After the event he made careful enquiry to see whether there were any symptoms at all which could have suggested to them the diagnosis of duodenal ulcer, but no evidence could be elicited. The second case was one of general peritonitis, and the patient lived for exactly nine days after the onset of the symptoms, so that there was abundant opportunity of enquiring into the history. The question of operation was discussed several times. In that case also there was nothing to suggest the presence of an ulcer of the stomach or the duodenum. At the autopsy an ulcer was found in the first part of the duodenum on the anterior surface. There was nothing in the character of the pain to indicate that there was an ulcer in the duodenum. After this he looked up all the cases they had had at St. Thomas's Hospital for some years, and he came to the conclusion that they could not have been diagnosed. The only point upon which he laid stress was that in these cases the onset was very severe. In ulcer of the stomach there would be symptoms pointing to such condition, but in duodenal ulcer there would probably be no previous symptoms. The very latency of the symptoms therefore made it likely that it was perforation of the duodenum or of the vermiform appendix, and if in a man, the chances of its being one or the other were about equal.

Dr. C. H. F. ROUTH expressed his surprise that no mention had been made of the valuable aid to diagnosis afforded by the passage of a current of positive electricity. Such a current often indicates the exact site of the lesion, the pain, if due to inflammation, being intensified. In this way it was possible to distinguish between pain due to an inflammation and that which was neuralgic, the latter being relieved by electricity. He had had recourse to this method over and over again in regard to the stomach and the ovary, and always with success. This method had been brought forward in a very strong manner by Dr. Apostoli, of Paris, in reference to painful affections of the ovary and stomach.

Dr. AMAND ROUTH, referring to the important symptom of feculent matter in the peritoneal cavity, which was stated to be present only when the lower bowel was involved, observed that the contradiction afforded by one of Mr. Lockwood's cases might be explained by the fact that the case was one of acute intestinal obstruction with vomiting. Under these circumstances it was probable that reversed peristalsis had caused the passage of faecal matter into the higher regions of the intestine, and thus led to faecal exudation from the opening in the duodenum. The case was, therefore, an exception which tended to prove rather than to weaken the rule.

Mr. HOWARD BARRETT referred to a case which occurred in his practice during the early part of last summer, in the person of a gentleman aged 43, who had suffered from dyspepsia at intervals. He was in the habit of bolting his food, and was a person of poor circulation and low vitality. He had on various occasions consulted eminent specialists for his dyspepsia, and amongst others the late Sir Andrew Clark. He alluded in passing to the fact that in two of the cases brought forward by Mr. Sheild, the rupture of the ulcer had occurred, the one in a theatre and the other in a music hall. Whether the dramatic art had any casual relationship to the accident, he would not undertake to say, but it so happened that his patient, also while at a theatre and apparently in

quite his ordinary health, suddenly experienced the sensation of "something giving way inside," followed by very severe pain, faintness, and vomiting. Within a short time the temperature rose to a considerable degree, the pain continuing almost unabated. The symptoms developed in the manner one might expect during the formation of a subdiaphragmatic abscess. During this time the patient was seen by two competent medical men, also by Dr. Stephen Mackenzie, and once again by Sir Andrew Clark, but no diagnosis of ruptured gastric or duodenal ulcer was made by any of them. In the course of a few days from the accident he was able, however, to diagnose the existence of a large sub-phrenic abscess, and almost immediately abdominal section was performed by Mr. Godlee, and an immense quantity of pus was evacuated with an extremely foetid odour. The case made a good recovery. Both Mr. Godlee and himself were of opinion that a minute ulcer of the duodenum was probably the cause of the mischief, though he admitted that in this case there was no *post-mortem* examination to verify the diagnosis. The patient had suffered from frequent bouts of pain in the right hypochondrium, and there was a clear history of dyspepsia followed apparently by rupture of some internal viscus.

Mr. SHEILD, in reply, said that in both of his cases the contents of the peritoneal cavity had no faecal odour. He could not help thinking that in the majority of cases of duodenal ulcer, if the operation were done early, non-faeculent lymph would be found. He admitted, however, that if violent vomiting had taken place, a certain amount of faeculent matter might, as the result of reversed peristalsis, find its way into the duodenum and the peritoneal cavity. In operations for perforation of the vermiform appendix, the gas that escaped had a marked faecal odour, often peritoneal effusion. The reaction, if fresh, was acid, but it might become alkaline by admixture with the peritoneal lymph. If an incision was made below and the characteristics of superior perforation found, an incision ought to be made in the hypogastrium without prolonging the incision upwards and without further delay. He agreed with Dr. Mackenzie that in a certain proportion of cases no diagnosis could be made. He expressed the hope that their medical colleagues would in future hand over these cases at once without waiting to try the effect of medication, or until the peritoneum had had time to get into a hopeless condition of sepsis. In nearly all the cases he had seen, there was at first marked collapse, sometimes so intense that the patients died right out and the symptoms were mistaken for the effects of poison. He had no doubt that this intense collapse was significant of an ulcer high up. He did not think it was met with in perforation of the vermiform appendix, because there was not so much infective fluid poured out all at once. Mr. Barrett assumed that the symptoms in his case were caused primarily by an ulcer in the duodenum or the stomach. He himself had seen three cases of subdiaphragmatic abscess operated upon, but though the fluid was exceedingly offensive, it was not distinctly faeculent. It was very rare for patients to recover from subdiaphragmatic abscess when there was a direct communication with the stomach or duodenum. In Mr. Barrett's case a very small ulcer might have perforated from the stomach and have closed, or the case might be explained by the bursting of an abscess in the neighbourhood of the gall bladder or in many other possible ways. All the cases he had seen died, though under careful and skilled treatment, and their only chance lay in early abdominal section, followed by elaborate cleansing of the abdominal cavity.

Mr. LOCKWOOD, in reply, pointed out that in the case operated on by Mr. Langton there was a hernia which was not strangulated, but the patient had vomiting due to paralytic intestinal obstruction. Dr. A. Routh's explanation had not occurred to him.

November 26th, 1894.

A CASE OF SUBCORTICAL CEREBRAL TUMOUR TREATED BY OPERATION.

By CHAS. E. BEEVOR, M.D., F.R.C.P., and CHARLES A. BALLANCE,
M.S., F.R.C.S.

SUMMARY OF SYMPTOMS.

THE salient points of the case which we record below were as follows:—

1. The gradual onset of the paralysis, involving successively the right ankle, the knee and hip, and then extending, after the lapse of seven months, to the joints of the right hand, and then to the whole of the upper extremity. Finally speech became affected.
2. The classical symptoms of intracranial pressure were present—headache, vomiting, and optic neuritis.
3. The mental condition gradually deteriorated.
4. There was some loss of sensation affecting the right limbs chiefly (*see* figures on p. 59), while the face entirely escaped.
5. There was no family history of tubercle, and no personal history of tubercle or syphilis.
6. Under antisymphilitic remedies, taken for over six weeks, the patient's condition not only did not improve, but grew worse.

GENERAL DIAGNOSIS.

Hemiplegia may be due to vascular changes such as hæmorrhage, embolism, and thrombosis when the onset is sudden, or takes only a few days to develop; but in the case of hemiplegia, which progressively increases during several months, there is strong presumptive evidence that it is due to a tumour, and when this is associated with optic neuritis, headache, and vomiting, the combination of symptoms makes the diagnosis almost certain.

LOCALISING OR SPECIAL DIAGNOSIS.

Having determined on the presence of a tumour in the left cerebral hemisphere, the next question to settle was its exact position. Such hemiplegia might be caused by a tumour of the cortex, the centrum ovale, or the internal capsule, and we will now give the symptoms of lesions in these different parts:—

(a) The type signs of involvement of the cortex are: 1. Jacksonian epilepsy: the aura or the initial movement being represented in the part of the cortex first involved in the tumour; this is followed later by a permanent paralysis of the same part which progresses in a definite order. 2. Corresponding to the paralysis of the limb segments there is change of sensibility. Light touches may not be felt, but if they are, they are not properly localised. Loss of muscular sense so that the patient is not cognisant of the position or the passive movement of his limb.* 3. Occasional tenderness of cranium over site of tumour.

(b) The type signs of involvement of the internal capsule are: 1. Absence of Jacksonian fits. 2. The paralysis is progressive, but extends more rapidly than a cortical paralysis owing to the closer gathering of the fibres. 3. Sensation tends to affect the whole of the opposite half of the body, including the head, to be more complete than in cortical lesions, and to involve all forms of sensation.

(c) The type signs of involvement of the centrum ovale can only be determined by a process of exclusion, and they probably are modified according as the growth extends towards the cortex or towards the internal capsule. 1. Absence of fits. 2. Absence of tenderness of cranium. 3. Progressive paralysis and progressive loss of sensation either of cortical or capsular type.

In comparing the present case with the symptoms of the above types, the internal capsule appeared not to be involved in the tumour on account of the fact, that the anæsthesia corresponded to the paralysed parts, and was not complete; further, localisation was imperfect, and muscular sense was lost, the face escaping completely. The gradual march of the paralysis, too, pointed away from the internal capsule.

The diagnosis, therefore, rested between a cortical and a sub-cortical lesion.

It is first to be noted that she had never had a fit, and although

* Horsley, 'British Medical Journal,' Oct. 9th, 1886, p. 670.

it is known that a cortical tumour may be present for many months without giving rise to a fit, still the general rule holds good that the absence of fits is against the diagnosis of cortical lesion. Secondly, there was never at any time any tenderness of the cranium, which, if present, makes for the diagnosis of a superficial cortical lesion involving the dura. Thirdly, the sensation was of cortical type, and did not assist in the differentiation of a cortical from a subcortical growth, but it pointed to the lesion being nearer to the cortex than to the internal capsule. Fourthly, the sequence in which the different parts of the brain were involved, as shown by the march of the paralysis, was also instructive. According to the experimental observations of Mr. Horsley and one of us (Beever) on the monkey, the different segments of the body are represented on the motor cortex and in the internal capsule respectively according to the following tables:—

Internal capsule, from behind forwards (Macaque monkey) :

Ankle.
Hip.
Hand.
Elbow.
Shoulder.
Mouth and tongue.

Motor cortex, from above downwards (cortex of Orang) :

Ankle.
Knee.
Hip.
Shoulder.
Elbow.
Hand.
Mouth and tongue.

It will be seen that, according to the above tables, the order in which the paralysis in this case came on, namely, ankle, hip, hand, elbow, shoulder, speech, corresponded rather to the arrangement of the internal capsule than to that of the cortex. This, however, did not materially alter the view that the tumour was probably near the cortex, since it is not known how high the arrangement of the fibres in the internal capsule is maintained in the centrum ovale. We, therefore, came to the conclusion that the tumour was subcortical, and did not involve the internal capsule. The importance of this from the point of view of relieving the patient was very great, since whereas a tumour of the cortex or centrum ovale may be removed, at present, one involving the internal capsule appears beyond the reach of operation. It does matter, too, whether the tumour be cortical or subcortical, since

presumably a cortical tumour may be more completely removed than one more deeply placed.

Mrs. S., aged 39, a patient of Dr. Morgan, of Seaford, was admitted to the National Hospital for the Paralysed and Epileptic on May 21st, 1894, for symptoms which had been recognised by Dr. Morgan and one of us (Ballance) as probably due to the presence of a subcortical cerebral tumour.

History of Present Illness.—Twelve months before admission the right ankle gradually became weak, and the foot was dragged in walking; this continued for some time; the paralysis then gradually extended up the limb, and it was not till seven months later that the right hand became affected. Soon after the whole of the right upper extremity was paralysed. Four or five weeks before admission the speech became for three or four days stuttering and thick, and three weeks ago it was noticed that tactile sensations were not properly localised on the affected side, and that light touches were not felt at all. At the time that speech became affected she first had an attack of vomiting, and at the same time very severe headache referred to the frontal region. The vomiting and pain intermitted; the last attack having occurred about a week before admission. No history of a definite fit could be obtained, or of giddiness. Double optic neuritis was observed three weeks ago. During the last week she had had attacks of sudden pain in the left side of the head of a hammering character.

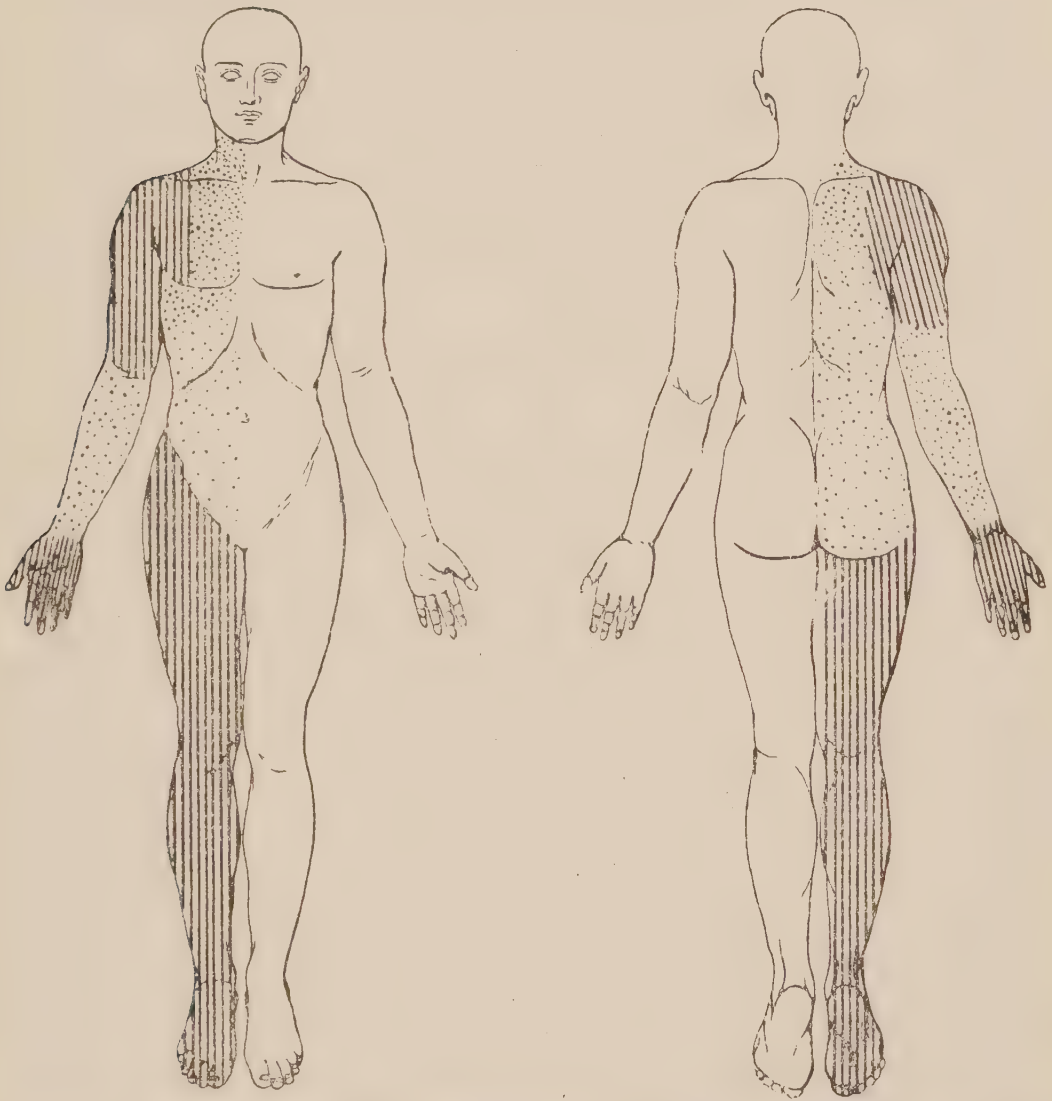
Previous History.—The patient has always had good health, and has had (previous to this one) no illness of importance. Married eight years; has had three children; one miscarriage two years ago after the birth of the last child. Husband is a coachman, a strong healthy man with no history of specific disease.

Family History.—There is no history in the family of tumours or nervous diseases.

Condition on Admission.—Fairly well nourished; face somewhat expressionless; mental state dull; no delusions; memory bad. Temperature rather subnormal, equal on either side; pulse 100. Motor System: Movements of eyes good; movements of right side of face less brisk and rather weaker than on left side. The upper face muscles act equally, as do the muscles of mastication, and the tongue is protruded straight. Movements of right fingers and elbow are very feeble, extension of the latter being absent. No movement of shoulder, and this part cannot be shrugged. The grasp of the right hand is absent. Abdominal muscles—that is, the recti—act equally. Right leg: No movement of toes or ankle; flexion and extension of knee very weak; movements at hip with difficulty obtained. Patient can walk fairly well with assistance, swinging the right leg forwards. The wrist tap on right side is increased, as is also the right knee-jerk. Jaw-jerk brisk. Plantar reflexes equal and brisk; ankle clonus is present on the right side. There is no rigidity of the right limbs.

Sensation.—Frequent attacks of headache, but no tenderness of scalp. No anæsthesia of face. Light tactile sensations not so well felt on the right arm and leg as on the sound side. *Localisation* imperfect; sometimes too high and sometimes too low; this is more marked over the upper arm, shoulder, and hand than on the forearm. The anæsthesia extends over the chest to the mid-line and up to the lower jaw, but is less marked than on the shoulder. Over the abdomen and back on the

right side there is slight blunting of sensation and defective localisation. Over the right lower limb sensation is blunted to an extent equal to that over the shoulder. *Muscular sense* is lost in the joints of the right upper limb and in the right toes and ankle. It was present in the right knee and hip. No complete analgesia, but pricks are felt less on the right side below the face than on the left side. *Heat* and *cold* impressions blunted over the right limbs and right side of trunk.



Charts showing the area of anæsthesia which entirely disappeared after the operation. Vertical lines show marked blunting to tactile impressions; dotted areas show slight blunting to tactile impressions.

Ophthalmoscopic Examination by Mr. Gunn.—In the right and left eye there is blurring of the edges of the discs all round with considerable venous turgescence. Each optic disc is high coloured and the retina for a long distance outside is wanting in transparency; the details of the fundus are somewhat interfered with by a vitreous haze which Mr. Gunn considered indicated specific disease. Vision: right eye, $\frac{6}{15}$ ths badly, J. 1, 10 inches; left eye, $\frac{6}{15}$ ths well, J. 1, 10 inches. No hemianopsia;

no limitation of visual fields. Pupils unequal; R. 7 mm., L. 6 mm.; they react normally.

Smell and taste good on both sides; no affection of hearing. Lungs, heart, and abdomen healthy; urine normal.

The treatment at first adopted was inunction of ung. hydrag. daily, with the internal administration of pot. iod., gr., 5 ter. die. The dose of pot. iod. was gradually increased. On June 6th she was taking gr. 20 ter. die., on June 13th gr. 25 ter. die., and on June 20th gr. 30 ter. die. On June 8th the mental state was more lethargic and the optic neuritis was worse. The discs were examined by Mr. Gunn, who reported that the right disc could be seen with + 3 and the left with + 4, and that there were hæmorrhages in both discs. As the paralysis did not improve, and as the mental condition was deteriorating, it was determined to operate with a view to the removal, if possible, of the tumour.

Operation.—On July 11th, the scalp having been prepared in the usual way, the patient was placed under chloroform, and a large Horsley's Π -shape flap was thrown down on the left side. This flap included the periosteum, and allowed of the exposure of the coronal and sagittal sutures, about one inch of the posterior part of the left frontal bone, and practically the whole of the parietal bone with the exception of the anterior inferior angle, and the part immediately adjacent to the lambdoid suture. The portion of bone to be removed was then marked out by means of a large saw. It was in shape a parallelogram, whose anterior and posterior borders running parallel with each other were planned also to run parallel with the sulcus of Rolando. The anterior border encroached a little on the frontal bone at its lower end. The upper border of the parallelogram corresponded with the sagittal suture, and extended along it from the bregma for fully $3\frac{1}{2}$ inches. The lower border was parallel with the upper and $2\frac{1}{2}$ inches below it. The portion of bone removed would thus include the parietal eminence, and would allow of the free exposure of the upper part of the motor cortex, especially of the toe and ankle centres at the upper extremity of the ascending parietal convolution, which it was desired to thoroughly examine.

The removal of the bone thus marked out was accomplished by the aid of the same large saw, by means of which it was divided up into small quadrangular pieces by vertical and horizontal cuts. These pieces were then easily raised from the dura by an elevator. As soon as one piece had been removed the use of strong bone cutting forceps facilitated the final separation and removal of the pieces into which the bone had been mapped out by the saw. Along the upper boundary of the opening in the skull the final removal of bone was accomplished in part by disarticulation at the sagittal suture. In this way the dura was exposed without injury, and the middle meningeal artery lay upon it without having been wounded. The dura bulged considerably into the opening in the skull. As it was clearly desirable to perform the operation in two stages, the edges of the scalp wound were now brought together by horse-hair sutures, the antiseptic dressing applied, and the patient put back to bed.

On July 17th (that is, six days after the first operation), the patient having completely recovered from the previous operation, she was again chloroformed by Dr. Dudley Buxton. On removing the dressing the wound was found united by first intention, but its edges were easily

separated by the handle of a knife after the stitches had been cut. The scalp flap was again thrown down, no bleeding occurring, and wrapped up in an antiseptic dressing. A little clot was lying on the dura. This was taken away, and as large a square dural flap as possible was cut and folded down over the scalp flat. The part of the cortex thus exposed was bulging, and, especially over the upper part of the ascending parietal convolution, presented a mottled unnatural appearance. This mottling may have been due to minute ecchymoses produced during the removal of the bone a week before, or to malignant invasion of the cortex. The former alternative seemed the more probable. On palpation no area of special resistance indicating the site of the tumour could be discovered, but on exploring the mottled ascending parietal convolution with the finger, the cortex being here greatly thinned, was broken through, and the tumour of a whitish-grey colour was seen. As the ruptured cortex receded, the tumour appeared to be discontinuous with the brain substance, and an attempt with the finger and the handle of a sterilised silver spoon was made to shell it out. This, however, was impossible, as it was discovered to be continuous with and infiltrating the surrounding cortex, and also the substance of the hemisphere about an inch below the surface and towards the front and middle line. The consistence of the tumour was semi-gelatinous, softer than the normal brain substance, and it was found easier to remove it with a silver spoon than in any other way. A considerable hæmorrhage occurred at the time, and, as it was not well controlled by filling the cavity in the brain with cotton wool, a series of fine silk threads were passed through the cortex for a depth of about $\frac{3}{4}$ inch all round the affected area except for about an inch at the median line, and tied so that all the vessels within the operation area were controlled. The area was about $2\frac{1}{4}$ inches in diameter. A free incision was then made through the cortex all round, just within the line of ligature, and all the included part, brain, and tumour was taken away by means of the spoon. The tumour extended to the medial surface of the hemisphere, and so a part of the marginal convolution and quadrate lobule was removed, the falx being clearly exposed. In this way as much of the tumour as was visible was removed, but as the line of junction of healthy and diseased tissue was so indeterminate, it is not possible to say that the whole tumour was excised. It is, indeed, probable that it was not.

At the close of the operation the brain presented a large cup-shaped cavity nearly 2 inches deep, and the size of half an orange. It is probable that the area removed comprised the upper part of the ascending frontal and parietal convolutions, the anterior part of the parietal lobule, and the adjacent portion of the marginal convolution. When all bleeding had ceased the dural flap was very carefully stitched in position with fine silk. No bone, of course, was returned. The scalp flap was brought into place by many horsehair stitches.

The antiseptic employed during the operation was solution of mercuric perchloride (1 in 2,000). The brain wound was constantly irrigated with the solution so as to keep it clear of blood, by squeezing a wet cotton wool mop over it. No marine sponges were used, and the operation area was kept free of blood, not by mopping or touching the brain, but by the stream of fluid.

During the operation the patient was kept warm by several hot bottles, but she was much collapsed when she was put back to bed, the pulse was very small and thready, and her temperature was as low as 95° F.

A brandy enema was administered, the bed placed in front of a large fire, and, the patient being surrounded by hot bottles, her condition improved, and the danger of death from shock soon passed away.

Dr. Colman, Pathologist to the hospital, made a microscopical examination of the tumour, and reported the growth to be a sarcoma with round and spindle cells.

On the next day, July 18th, the pulse had improved, but was still of poor force and tension; the patient had marked aphasia, largely motor, as she could say her name, but could not repeat words spoken to her. She understood a good deal of what was said to her, and said "Yes" and "No" appropriately, but she did not understand simple commands, as when told to put her hand on the top of her head she failed to do so. She was completely paralysed in the right arm and leg.

On July 19th the patient had a series of clonic spasms involving the right angle of the mouth, which was drawn upwards and outwards, but the orbicularis palpebrarum was not affected. Each attack lasted a few minutes.

On July 20th she had a similar attack lasting three hours. From this date her convalescence was uninterrupted. The dressings were changed twice, on the 19th and 29th, and on the latter date the stitches were removed. The temperature varied from 97.5° to 99° , and was not materially different on the two sides.

July 26th. It was noted on this date that the position of the right hand was as follows: The hand lay on the bed with the thumb adducted and with the phalangeal joints flexed; the first and second fingers were in the interosseal position, while the third and fourth fingers were semi-flexed at all the joints. There was constant clonic spasm of the thumb and index finger towards each other with extension of the first and second fingers, but without affecting the other fingers and the wrist. This spasm was first noticed on the 22nd, but was not continuous till the 26th. The aphasia had passed away, but there was still some hesitation in speaking; although appropriate words were used, it had been noticed that the nouns were the last to return.

There was absolute loss of power in the right upper extremity, but on July 25th the patient began to have voluntary movement in the right lower limb, and was able to flex the hip and extend the knee, raising the heel off the bed, but she had no power to move the right ankle or toes. Abduction and adduction of the hip-joint, and flexion of the knee was also possible. On testing sensation it was found that she could recognise the slightest touch on the right side, but localisation was defective.

July 30th. The clonic spasm had ceased, motor power had still further improved in the leg, but the upper limb remained powerless.

Mr. Donald Gunn, on July 31st, made an ophthalmoscopic examination, and found the right disc was swollen to $3\frac{1}{2}$ D. The swelling was steep at the edges, and extended on to the retina beyond the margins of the disc; there were also some hæmorrhages with full veins.

On August 28th her vision was $R = \frac{6}{18}$, with difficulty, and J. 6 at 10 inches for both eyes, slowly.

August 29th. The condition of the patient was as follows: Her mental condition was very much improved, and from being morose and dull, she became lively, and amused the other patients. She had no paralysis of the face, and could now carry the right hand to the chin, but could not move the fingers or thumb; she could walk with a little

assistance, she had good movement at the hip and knee and some movement at the ankle, but no movement of the toes.

With regard to sensation, she could appreciate light touches everywhere, but over the right upper limb the localisation was still faulty. Speech was perfectly restored.

We wish to thank the resident medical officers of the hospital, Drs. Whiting and Warrington, for the great care which they took in the management of the case.

CONDITION AT PRESENT TIME, NOVEMBER 20TH, 1894.*

The hair has grown again, hiding the area of operation. The scalp covering the opening in the skull, which when she left the hospital was a little concave, is now at the normal level. The edges of the bony opening are not quite so sharp as they were. The scar has to be looked for, being very narrow and showing the perfection of union by first intention. It might be thought that the filling up of the opening and the rising of the scalp over it to the normal level was due to recurrence of the growth, but in the absence of symptoms such a view cannot be definitely asserted, since a like phenomenon is not unknown after recovery from compound fracture, involving loss of brain substance.

The patient is restored to her normal mental condition. Speech is perfect. There is no headache. Movements of face normal.

Upper limb (right): Fingers as a rule are kept straight, phalangeal joints being extended and metacarpo-phalangeal joints being flexed. There is some very slight rigidity about the joints of the hand and wrist, and at the elbow the humerus can be passively abducted to a right angle but beyond that pain is caused. She can extend the fingers but not thumb. Grasp, left, 60; right, 11 (weakest dynamometer). Can flex well thumb and fingers, can pick up a pin with the right hand from a soft ground, not from a hard flat one. Cannot button with finger and thumb. Consensual movement of the right hand obtained with grasp of left, but grasp of left does not increase power of right grasp. Frequent slight clonic spasm of first finger and thumb (no tonic spasm) observed and increased by emotion. Can extend wrist to a line with forearm but not beyond. Can pronate and supinate forearm. Can flex

* *September 10th, 1895.*—A letter has been received from which it appears that the patient is about in the same state as when the note on November 20th, 1894, was made.

and extend elbow. The humerus she can elevate to a right angle but not beyond that. She has some difficulty in advancing the humerus, but can adduct it strongly. In abduction the whole scapula moves. She has very little power to shrug the right shoulder, but the anterior part of the trapezius acts well in forced inspiration.

Right lower limb: There is no rigidity in the joints, but the calf muscles have shortened so that the ankle cannot be dorso-flexed to less than a right angle. She walks without assistance, or stick, swinging the right leg, catching it on the ground sometimes, but has not the least power in the toes, either flexion or extension, and she can only faintly plantar-extend the ankle, but cannot dorso-flex it. The right knee she can extend powerfully, but flexion is weak; extension and flexion of the hip are good, but weaker than on the left; rotation out of hip good, rotation in weak. Knee-jerk excessive on the right, well marked on the left: right ankle clonus. Radius and ulna tap readily obtained on right; no jaw-jerk. Right plantar reflex deficient.

Sensation.—Pain in the right shoulder, especially when it is moved. No anæsthesia anywhere, and localises correctly. No loss of muscular sense.

A remarkable feature about this case is that, though so large an area of cortex has been removed, the patient has recovered sensation completely, and, with the exception of the toes, ankle, and shoulder, she has recovered almost completely as regards direction, but with diminished strength, as compared with the other side. We would explain this, according to the theory of Dr. Hughlings Jackson, as follows: that all movements of the upper limb, for instance, are represented in all parts of the upper limb area of the cortex, but in different degrees; and that it is not possible to completely paralyse the upper limb unless the whole of this area is removed. In our case some of the upper limb area was left. This in no way invalidates the minute analysis of cortical representation, which demonstrates the place where any definite movement is most highly represented.

November 26th, 1894.—Mr. Gunn made the following note:—

Surface of right disc seen with + 1.

Surface of left disc seen with + 2·5.

Slight muddiness of upper and lower disc margins of right eye.

Remarks on Treatment.

The question is not seldom asked : " What do patients suffering from tumours of the brain gain from surgery ? " It appears to us that in the several following ways enormous benefit may be given by operation :

1. The complete removal of a tumour, as in Mr. Horsley's case, of a small tuberculous mass occupying the cortex in the region of the representation of the movements of the thumb.* This patient, a man aged 20, suffered from frequent local fits, beginning in the thumb and forefinger, and from headache and from these symptoms he was completely relieved by the removal of the tumour and part of the cortex.

2. Partial removal of a tumour, as was probably done in the case on which this paper is founded. The operation on this patient relieved her of headache, vomiting, double optic neuritis, anæsthesia, and from the greater part of her paralysis; the mental condition, which was very much deteriorated, was restored, the patient regaining her former bright and cheerful condition.

3. The draining of a cavity in a cerebral glioma or sarcoma which cannot be removed. This is well illustrated by a case which was under the care of one of us (Ballance) and Dr. Gowers. This patient, aged 11 years, suffered from headache, vomiting, double optic neuritis, fits beginning in the thumb and followed by hemiplegia, and was practically relieved of all his symptoms, including moral deterioration (stealing), by this procedure. He lived for three years.

4. *The Removal of Bone and Incision of the Dura Mater.*—The benefit resulting from this operation is well shown by a case which was under the care of Dr. Buzzard and one of us (Ballance). A woman, aged 41, was admitted with symptoms pointing to tumour of the internal capsule, namely, hemianæsthesia, nearly complete hemiplegia, double optic neuritis with failing sight, and severe headache with agonising paroxysms. In one of these paroxysms she became comatose and was evidently dying, it was thought from hæmorrhage into the tumour. The above operation was at once performed and the relief of the urgent symptoms was immediate, and in a month's time the report states that there was no headache, vomiting or optic neuritis, and some return of power

* 'British Medical Journal,' 1887.

and sensation had already occurred, with improvement of sight and restored mental condition.

5. Removal of a considerable area of bone without opening the dura mater is, we believe, considered by some to be adequate to relieve the classical symptoms of tumour. It is true that the dura bulging through the opening in the skull indicates that there is a relief of pressure, but what we have to deal with, is tension within a practically inelastic membrane, and the intradural space can hardly be materially increased while the dura is intact and the opening in the skull is comparatively small. The sac of the dura cannot be distended to its full extent while the cranium is intact, and so when bone is removed its foldings are flattened out. A considerable fall in pressure can only be obtained by taking away a large area of bone, and in tumour cases, when this is done, the dura still bulges under much *plus* pressure. As we have known of no case in which the removal of bone alone has relieved the pressure symptoms, we should advise that the dura should always be opened; another reason of great import being that the cortex might be involved without any of the type signs being present.

The following experiment is of interest in showing how little extra room is gained in the dural cavity by the removal of a very large area of skull:—

A dog was killed with chloroform, and a cannula was passed into the cranial cavity through the spinal theca in the cervical region. This cannula was then connected with a manometer which was filled with oil. The column of oil was made to rise 1,000 mm. high in the capillary tube connected with the manometer, and a trephine opening 1 cm. in diameter was then made in the skull. The fall in consequence was very slight, the dura bulging through the trephine hole. Then more and more bone was removed, until nearly half the vault of the skull was taken away. It was then noted that the oil in the capillary tube had fallen 300 mm., the volume of which, as estimated, showed that only 0.54 c.cm. of oil had entered the dural cavity in consequence of the removal of bone.

We are much indebted to Dr. Sherrington for his aid in this experiment.

We would conclude this paper with the question, How soon should one of the preceding operations be performed? When the type symptoms are present, it is quite certain that no delay is desirable after a fair trial has been given to anti-syphilitic

remedies, and we should limit this time to six weeks or two months.* The main difficulty arises when the symptoms are not typical, and it is to be borne in mind that large, slowly-growing tumours may be present without any symptoms which are unequivocal. As an instance of this, a case may be referred to which was under the care of Mr. Horsley and one of us (Beever). The patient had occasional fits with unconsciousness, beginning in the corner of the mouth, six years before other symptoms arose which justified operation, and then the tumour was found to be so situated that it could not be removed without producing aphasia. It would be easy to mention other cases illustrating the same point.

In any case in which the typical signs of tumour are absent, and where the fits always begin with the same localised warning, and are attended with loss of consciousness, the question is, Are these fits due to idiopathic epilepsy, or are they due to a tumour? We would say that no operation is advisable, other signs of tumour being absent, unless the paralysis which follows the fits is permanent—that is, not recovered from in the course of a few days, or unless the fits occur very frequently. While it is impossible to lay down absolute rules for the treatment of these cases, it would appear that occasional fits, beginning locally, followed by loss of consciousness and attended only by headache, would not justify an operation, but any other combination of the type symptoms—headache, purposeless vomiting, optic neuritis especially with failing sight, localised fits, and permanent paralysis—would render surgical operation advisable.

SIR WILLIAM MACCORMAC congratulated the authors on their paper, which he admitted himself scarcely competent to discuss, observing that the minutely detailed history given by them of how the diagnosis was led up to step by step was so complete, and was acted upon with so much skill and courage, that both were entitled to the greatest credit for their respective share therein. It was reassuring to find that cerebral tumours could be dealt with in so complete a way, and that the brain was tolerant of such extensive interference. It was unfortunate that a sarcoma of the brain did not admit of the treatment which a surgeon could apply elsewhere. It was open to question how far the operation would guard the patient against recurrence. That the sequel of the case—which he hoped would be conveyed to the Society at a future time—could alone tell. Whatever that sequel might be, it would not detract from the brilliant manner in which the case had been conducted throughout.

Dr. JAMES TAYLOR said he was interested in the case because he had had the patient under his observation before and since the operation.

* Horsley, 'British Medical Journal,' 1893.

The authors' paper raised some of the most important points respecting the treatment of intra-cranial tumours. Although they could give no assurance against recurrence after partial removal of a sarcoma of the brain, the results in the enhanced comfort of the patient were certainly considerable. He was, however, unable to concur in the sanguine hopes expressed in the paper of the possibility of non-recurrence. The condition of the site of operation, in respect of the filling up, was already very different from what it was soon after the operation. He recalled a case in which symptoms of cerebral tumour had been observed for several years; an operation was followed by complete relief of all the symptoms except that there was, as in this case, a considerable amount of hemiplegia. Six months after the operation the condition was similar to that of this patient. What was at first a distinctly depressed area had become filled up. That patient died three weeks later. Although in this case he feared that the patient would have a recurrence, if it were not already present, the paper had raised the important question as to what ought to be done under such circumstances. No one who had seen the patient's condition previously to operation and since the operation, could doubt that the result had been to materially change matters for the better. He was interested in the relief of intra-cranial pressure and its effect on causing the disappearance of the headache, optic neuritis, &c. He had never seen any case of a cerebral tumour in which removal of a piece of bone had alone been resorted to. All the cases he had seen had also been treated by incision of the dura mater. In nearly all the cases the relief afforded by that operation alone had been very considerable, the headache and the fits having disappeared, and the optic neuritis having subsided. He had made a good many *post-mortem* examinations of cases of cerebral tumour not operated upon. Upon removal of the skull-cap there had been unmistakable evidence of pressure on the dura mater, and the effect of mere opening had been very marked, in fact, a slight incision in the dura mater was often followed by a tear of its own accord, the hemisphere itself bulging through the rent. That fact bore out what the authors had pointed out, viz., that the intra-cranial pressure was not so much pressure inside the skull, as that *plus* pressure inside the dura mater.

Dr. HALE WHITE observed that the case was the more interesting because there were very few instances of removal of subcortical tumour on record. One or two American cases had been recorded quite recently. They had to distinguish between the cases in which it was possible to remove the tumour as a whole, and those in which the pressure symptoms could be relieved. The cases in which the tumour could be wholly removed were very few. He had taken the trouble to go through a hundred consecutive *post-mortem* examinations of cerebral tumour. He had found about 10 per cent. in which it was likely that the tumour could be removed. Of course, if tumours could be cut out in only 10 per cent. of the cases, an attempt should be made to reach and remove them whenever there was any chance that success would follow. His first case in which an operation was done was like the authors' in that hemiplegia was the chief symptom, but this was due to a subcortical chronic abscess. This was diagnosed during life, but it was some years ago, and as the cortex appeared healthy the surgeon closed the wound, and soon after the child died. On *post-mortem* a large abscess was discovered, which might easily have been emptied, though in view of the child's enfeebled condition he doubted whether life would have been saved had this been done. The next case was one of growth from the

under surface of the skull in a man who suffered from Jacksonian epilepsy, and who was completely cured by operation. A third case was that of a woman whose breast had been excised some time previously for sarcoma in St. Thomas's Hospital. She was diagnosed by her medical man, Dr. F. Smith, to have secondary growth of the cortex, there being very frequent attacks of Jacksonian epilepsy commencing in the right hand. They had explained to the patient the exact position of affairs, pointing out that though they could hold out no hope of freedom from other growths her symptoms would be improved for the time being, and she gladly assented to an operation. Mr. Lane had therefore cut down on the cortex, which looked quite healthy. Dr. Hale White, however, felt so certain that there must be disease of the hand and arm area that Mr. Lane removed the arm area. On examining the sections microscopically the tissue removed proved to be the seat of a sarcomatous growth. This led him to remark that even *post-mortem* it was often difficult to distinguish between healthy cortex and a cerebral tumour. The case impressed him very much as showing that in presence of certain symptoms it would be well to remove a centre even though to the naked eye it appeared to be healthy. He remarked that in this case the temperature of the side which remained paralysed was uniformly 1° higher than on the opposite side, and he asked whether anything analogous had been observed in the authors' case. Passing to the consideration of operations undertaken for the relief of mere pressure symptoms, he asked the authors whether their experience showed that an incision in the dura mater would do as much good in the event of the tumour being cerebellar as when it was cerebral. Also he was anxious to know whether such patients took the anæsthetic badly. He knew of a case which had recently died under the anæsthetic.

Dr. MOTT said he was particularly interested in this case from a physiological point of view. He asked the authors for an explanation of the rapid clearing up after the operation of the loss of tactile sensation and loss of movement. The fact that there was at present no tactile anæsthesia, although so large a part of the brain had been removed, did not surprise him. His own experiments upon monkeys seemed to show that, unless the whole of the Rolandic area was removed or separated, there was not persistent anæsthesia to tactile impressions. If only the upper part of the Rolandic area was removed, the loss of sensation was very slight, in fact, much the condition observed in this case. He thought there was a good deal of evidence to show that the function of the cortex was sensory as well as motor, if indeed not wholly sensory. He had tested two cases in hospital, and he had found the parts that were quite paralysed were insensible to tactile impression, and as this cleared up so did the paralysis.

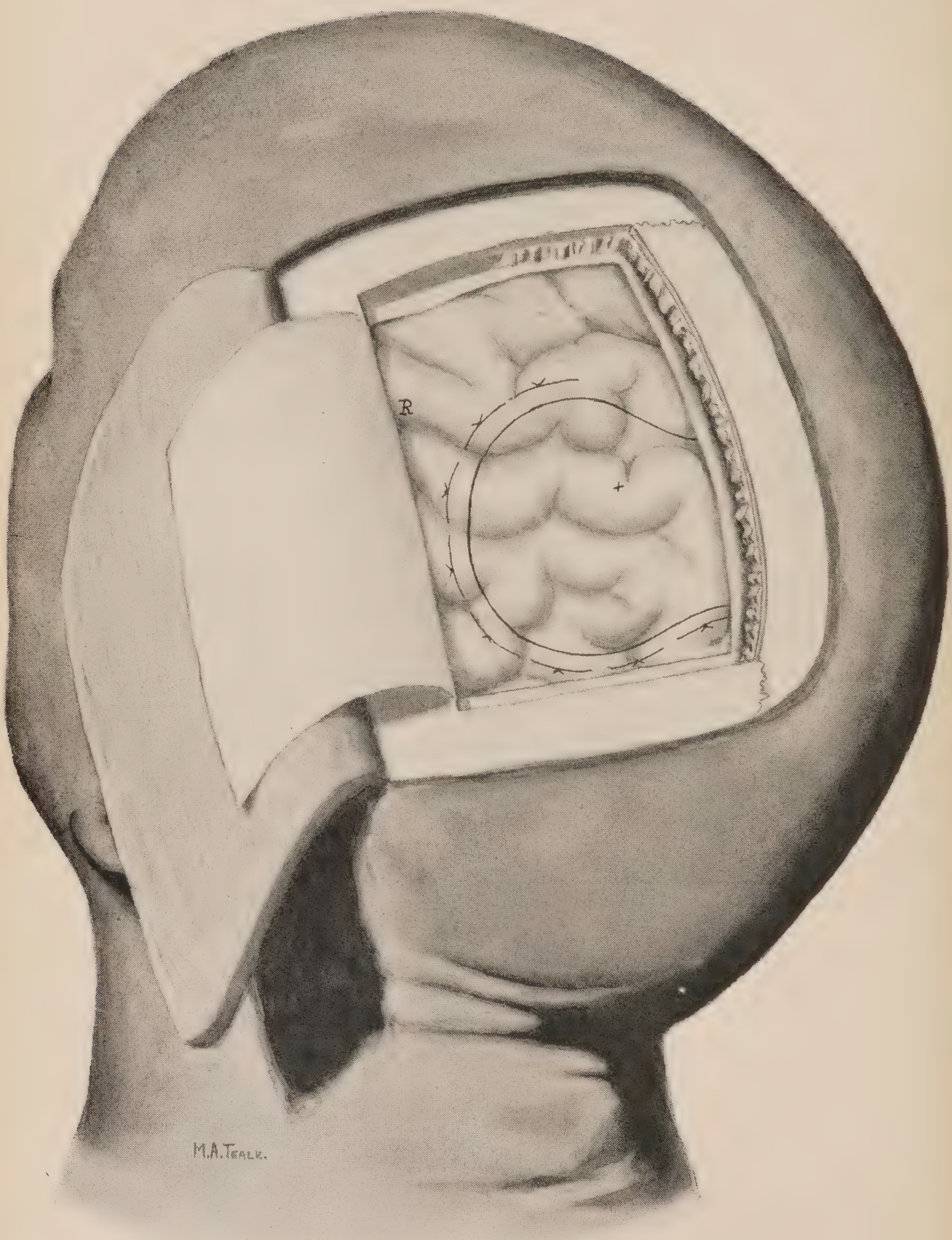
Mr. MARMADUKE SHEILD, alluding to Dr. White's case in which there had been secondary growths on the cortex subsequently to removal of the breast for schirrus, asked whether he had correctly understood that the secondary growths were sarcomatous.

Dr. WHITE replied that he should have described the disease of the breast as sarcoma.

Dr. ORMEROD referred to the case of a man who had remained some time in hospital after the operation had taken place, the ultimate result not proving good. The symptoms pointed to a tumour in the region of the arm centre. One peculiar point about the man was that, beside Jacksonian epilepsy, there had originally been epilepsy of the normal type,

that is to say, of sudden onset and with general convulsions. This ultimately gave way to Jacksonian epilepsy, with involvement of the arm centre, and optic neuritis developed. Mr. Horsley removed a large part of a large tumour in the cortical and subcortical area corresponding to the arm centre, and the man was cured of the fits but remained hemiplegic. This lasted a month, but after a time the opening began to bulge. It was tapped, and some fluid removed, and later the wound was reopened and some solid matter taken away, but the bulging again recurred. The man having remained in *statu quo* for a time then began to develop some curious symptoms. First one pupil became dilated, and then from a quiet-tempered man he became insane, and he died a month or two later, when a large tumour was found infiltrating the deeper parts, and reaching indeed down to the corpus callosum and the base of the brain.

Mr. BALLANCE, in reply, explained that the patient did not walk well on entering the room, partly because her boot was not properly on, and also no doubt because she was rather nervous. He had, however, been informed that she had walked 40 times round the garden of the Queen's Square Hospital. With regard to the disappearance of the concavity of the scalp over the operation area, he admitted that they did not know whether the tumour was re-growing or not. He did not pretend for a moment that he had removed all the tumour, and as it was a sarcoma, recurrence might very well take place. What they had said in the paper was that the simple filling up of the scalp to the surrounding level was not in itself proof of recurrence. It was indeed a phenomenon with which surgeons were familiar after depressed compound fractures and the like. There must consequently be some other evidence of recurrence besides this. The important point about the case was whether the patient would have been benefited to the same extent by incision of the dura mater, and the draining of the subarachnoid space, in other words, had she gained anything by the partial removal of the tumour. He himself was of opinion that she had gained greatly thereby. For six months past any tumour tissue left behind at the operation had had a great cavity to grow into, and in that sense he thought the patient had benefited by the operation which left this cavity, otherwise the tumour would probably have gone on destroying the actual brain substance. With regard to Dr. Hale White's remarks, it was within his knowledge that a cerebellar tumour had actually been removed. No difference of temperature on the two sides had been noticed in their case. There were many instances in which incision of the dura mater and drainage had afforded relief from the headache, vomiting, optic neuritis, &c. He himself had operated upon several cases of cerebellar abscesses. Only one was followed by recovery, it was true, but in all the classical symptoms of cerebellar tumour entirely disappeared after the operation. He urged that the condition of things in cerebellar tumour was identical, as far as he knew, with what obtained in cases of cerebral tumour, and what would relieve the distressing classical symptoms in one might fairly be expected to do the same in the other. Incision of the dura mater added to the risk to the patient, because it opened up the subarachnoid space, and if the greatest care were not taken there might be suppuration, though this had not occurred in any case of his own. He did not think these cases took the anæsthetic badly, though of course it was necessary to have a skilled anæsthetist. Moreover, except while actually incising the dura mater, it was not necessary



M.A. TEAL.

*Description of Figure (about half natural size) illustrating the paper
of Dr. BEFVOR and Mr. BALLANCE on the removal of a Sub-
cortical Cerebral Tumour.*

A sketch was made by one of us (C. A. B.) from memory, and by its aid an artistic drawing was very kindly produced by Mr. M. A. Teale. It illustrates the plan of and the parts involved in the operation. The opening in the bone corresponds to the deficiency at present existing in the patient's skull. It is to be remembered that the curve of the head prevents the actual linear dimensions of the deficiency in the skull being reproduced on a flat surface. The drawing is a view at right angles to the mid point of the exposed cortex, and was made in part from the normal brain and in part by the help of one of Professor Cunningham's casts. At the upper border of the opening in the skull is seen the sagittal suture, at the lower border the scalp flap and the flap of the dura mater. R = the sulcus of Rolando. + = the place where the cortex ruptured during palpation. With regard to the area of so-called "motor cortex" involved in the operation the reader is reminded that the ascending frontal and parietal convolutions are separated from each other for a distance of $3\frac{3}{4}$ inches by the sulcus of Rolando. The fine silk cortical ligatures which controlled the bleeding within the region of the operation are represented. The continuous line within the silk threads is the line of incision of the cortex. The darker tint of the dura immediately below the sagittal suture marks the course of the superior longitudinal sinus. Disarticulation at the sagittal and coronal sutures was preceded by the application over them of the saw; this is indicated in the figure by the superficial cut section of the bone in the line of the sutures.

to procure the abolition of the conjunctival reflex. Dr. Mott had asked how they explained the recovery of movement and tactile sensation after removal of large portions of the cortex. He admitted that they did not understand why this was the case.

December 10th, 1894.

ON THE VALUE OF EXCITING ASEPTIC CELLULITIS
IN THE TREATMENT OF OBSTINATE INFLAMMA-
TORY AFFECTIONS OF THE URINARY ORGANS.

By E. HURRY FENWICK, F.R.C.S.

My title and the deductions I have drawn from clinical and pathological observations are open to criticism, but the gist of the matter, I am convinced, is worthy of some consideration. The surgeon of to-day strives at the rapid and aseptic healing of all wounds, and is justly blamed if an incision which he has made through the unbroken skin does not promptly unite without suppuration. I believe, however, that there are many chronic or obstinate inflammatory conditions of the solid viscera, which may be materially benefited by cutting on to them through the parietes of the body, exciting suppuration of a benign type in the cellular tissue of their immediate neighbourhood, and by draining off through the vessels of this layer the products of inflammation. I have been accustomed to term this method of dealing with chronic visceral inflammation, "*aseptic counter-irritation*," for it is, of course, nothing more or less than a more accurate and more energetic method of applying the seton, blister, or iodine paint, of old-fashioned medicine. I now submit that the surgery of the present day can advantageously substitute for such surface applications, the more powerful and more effective counter-irritation of an inflamed and drained cellular tissue.

The examples which I bring forward in support of this proposal are taken from urinary practice, but I have encountered cases equally satisfactory in general surgery, notably in the surgery of the liver.

My attention was first drawn to the matter in 1887, when I was suddenly called upon to treat a patient who was suffering

from a supposed rupture of the bladder. He had much dulness above the pubes, though the bladder was empty, and a great swelling was detected in the recto-vesical pouch. On laying open the cavity of Retzius by a suprapubic incision, I found the trouble was merely an acute interstitial or parenchymatous cystitis, which subsequently was proved to be due to Bilharzial disease.* In a few days the enormous swelling which had previously existed in the neighbourhood of the bladder disappeared, and it struck me that this unlooked-for result was probably due to drainage of the inflammatory products through the suprapubic incision. Since then I have gradually collected some pathological as well as clinical material which convinces me that inflamed cellular tissue exercises a considerable detergent effect upon any solid viscera with which it is in contact, and that these powers have either been overlooked or not thoroughly appreciated by the profession. The pathological effects of suppuration or extravasation of blood into the cellular tissue in the neighbourhood of solid viscera upon the health of the organ is perhaps well exemplified in the kidney. Here, the effects of large collections of pus or of blood upon the plumpness of the kidney can be demonstrated either on operation or *post-mortem*. It is often a matter of surprise to find how marked are the effects of perinephritis upon the size and consistency of the kidney. In perinephritis not due to disease originating in the kidney, the kidney is often found small and flattened on the anterior wall of the huge sac. It may be contended that this change results from some irritant in the kidney which has been overlooked by the pathologist; that the inflammation of the surrounding tissue is secondary; and that the atrophy of the organ is the remote result of the original nephritic disease, and not due to the effects of the perinephritis. The following illustration is therefore introduced as being as unequivocal as I have met with:

ENORMOUS SUBPERITONEAL HÆMORRHAGE AROUND THE KIDNEY,
ATROPHYING THAT ORGAN.

C.F., aged 30, had been treated by Dr. Ogilvie Will for a ruptured urethra, the result of a fall on the perineum from a

* 'Transactions of Medical Society,' vol. xi, p. 344, 1888.

height of 40 feet. Probably the loin was also bruised, for his buttock and side were black for long afterwards.

Apparently, a large extraperitoneal extravasation of blood which surrounded the left kidney, and had raised the peritoneum lining the left iliac fossa, had formed at the time of the accident. This collection, however, was partially absorbed, and when the patient came under my care a year after the accident, for the treatment of traumatic stricture, I was unaware that any blood-clot remained. I operated on the stricture by external urethrotomy. Three weeks after, when I thought the patient was nearly well, the temperature began to rise, and then to oscillate, and he complained of pain in the left loin, similar, as he said, to what he had previously experienced shortly after the accident.

I found the descending colon and sigmoid pushed forward by a large sub-peritoneal collection of fluid, the appearance of the loin resembling what is noticed in perinephritis. On incising the fluctuant swelling at the anterior iliac spine, I evacuated fully a pint of puce-coloured pus, and massive, decolourised and black blood-clot. Probably the old unabsorbed extravasation had broken down from some septic infection in connection with the external urethrotomy. The enormous cavity, which was discovered reaching as high as the level of the splenic position, healed rapidly and thoroughly, and the patient was dismissed from the hospital cured.

He subsequently came under my care with suppression of urine from calculous blockage of the right kidney, and died. He had been in the habit of passing stones from both kidneys, but had had no attack from the left side since the fall referred to. On *post-mortem* there was no trace of the large left perirenal sac which had contained so much extravasated blood and pus, its situation was merely marked by extreme thickness and discoloration of the peritoneum in this position. The left kidney was very small, perfectly formed, and markedly fatty. No scar was visible. Its pelvis contained a few millet seed calculi. Its ureter was patent, and there was no stone impacted in the canal. The renal vessels were small but apparently healthy. In the absence of any other cause, I considered that the extravasation and efforts of absorption had exerted so powerful an effect upon the kidney that it became crippled and atrophic. In cases of psoas abscess I have found the kidney smaller than normal, but I have not been able to satisfy myself that this might not have been due to wasting

noticed in tubercular disease. This case seems to me to point to the fact that solid viscera are greatly influenced by suppurations in their neighbourhood.* The effort of the surgeon should be to induce a mild cellulitis, and thus to imitate *in petto* the detergent results which such widespread and violent inflammations induce.

Clinical Observations.—I was very much struck with the startling result which a nephrotomy produced on a profuse and chronic unilateral pyelitis. I removed a large median prostatic lobe which had induced left-sided pyelitis in a man about 50 years of age. The catheter, upon which the patient had been absolutely dependent, was dispensed with, but the pyelitis was quite unaffected, and even remained as profuse as ever, though the bladder was drained suprapubically and perineally for a month. A year after the operation the patient returned to me with abscess in the left kidney. This I incised, and the pus in the urine, which had often amounted to half during the previous two years, completely disappeared, and the urine remained clear for four days. This sudden cessation could not have been altogether due to absolute paralysis of the kidney from shock, for even if no urine had been secreted by the diseased kidney, and the ureter had remained unflushed, the pus would still have made its way in some quantity into the bladder by gravity, and have appeared in the urine. Probably the drainage of the kidney and its surroundings checked the secretion of the pus abruptly, in the same way that an acute epididymitis causes a gleet to temporarily disappear. The pus gradually reappeared, but never in the same quantity as before. The sinus left by the operation remained open, and a year after the patient died. On *post-mortem* the pathologists could not find any trace of kidney structure.

I was called upon to deal with a slight gonorrhœal pyelitis, accompanied by much pain in the left kidney. After a year's patient trial of drugs I made an opening in the loin, stirred up the cellular surroundings of the kidney, and drained for a week. The urine cleared permanently, and the pain left him.

I suspect that some cases recorded as cured after an ineffectual exploration of the kidney for supposed stone, are due to the beneficial effects of drainage of the surrounding disturbed tissues.

* Much sound evidence on this point could be collected by examination of the solid organs of the pelvis after hæmatocele, or of the kidney in psoas abscess.

EXAMPLES OF THE EFFECTS OF DRAINING THE CELLULAR TISSUE SURROUNDING THE BLADDER.

I attempted some years ago to drain a contracted tubercular bladder of a young man in order to relieve him of the pain and distressing frequency of micturition from which he was suffering. But I never reached that viscus. I found dense adhesions in the pre-vesical space, and when I opened what I considered to be the little bladder, I found I had entered the peritoneal cavity. The edges of the peritoneal incision were carefully sutured and the original intention of opening the bladder was deferred for a week. He had so greatly improved, however, by that time, the urine had cleared, pain had diminished, and the irritability had been so much relieved, that I decided to do nothing further. I have seen the patient last week, the improvement has been maintained, but the disease has spread to the prostate and testicle. I should not now advocate opening an advanced tubercular bladder suprapubically.

A lady was sent to me by Dr. Valentine Rees, of Brecon, with a pyæmic pelvic abscess opening presumably into the bladder; the position of the abscess was doubtful. On cystoscopy the orifice of the abscess was easily detected, and Mr. Woodhouse Braine, my assistant, and I watched for some time the following curious phenomenon of pus being forced into the bladder through a minute opening. On the right lateral wall of the bladder low down, enormously swollen folds of mucous membrane were seen. In a furrow between two of these succulent rugæ, I suddenly noticed a long, white tapeworm-like body being forced out. It was square-ended, and appeared just like a telegraph tape or a macaroni film. After about one-third of an inch had protruded, it broke off by its own weight, and fell heavily to the base of the bladder.

Turning the light on to the base I saw a small heap of similar ribbons of white material. These were sucked out of the bladder, and seen to be merely tape-like threads of inspissated pus $\frac{1}{8}$ -inch broad and $\frac{1}{16}$ -inch thick. They were evidently being forced out of an abscess sac into the bladder through a very small channel of communication; and probably the severe pain which the lady had been suffering from for months, and which had necessitated

the daily exhibition of large doses of morphia, was caused by the pus being pent up under great pressure.

On introducing a probe together with the electric cystoscope into the bladder I was able to direct the former against the opening whence the pus was issuing, and was lucky enough to engage the orifice and push it on into the abscess sac. Immediately a cloud of pus swept over the field and obscured the view. Giving the probe to my assistant, I cautiously raised the pelvis and proceeded to perform laparotomy, expecting to find a suppurating ovary on the right side. After separating a few omental adhesions, I lifted the small gut out of the pelvic cavity and felt for the abscess, but without success. The right ovary felt normal. There was no collection of pus in the peritoneal cavity, for I turned on the searchlight and swept the floor of the pelvis with it. The peritoneum was discoloured and thick on the right side, as it appears when suppuration has been proceeding beneath it. Obviously the abscess was beneath the peritoneum and in the cellular tissue, on the right side of the bladder. I gave up the search and closed the wound, but determined to attack the abscess sac from the vagina, and drain it from below. I made a free incision along the right side of the roof of the vagina on to the probe, expecting to hit the abscess sac without opening the bladder. To my dismay, I found that the probe had slipped out of the sac during the varied manipulations to which the patient had been subjected. After an ineffectual attempt to re-insert it through the narrow orifice by aid of the cystoscope, I turned once more to the incision in the roof of the vagina, and cautiously dissected back between the bladder base, the rectum, and the uterus, hunting for the emptied abscess sac.

Failing to find it, however, although I had gone dangerously near the right internal iliac vessels, I inserted a drainage tube into the gaping wound in the roof of the vagina, and packed it round with cyanide gauze, hoping, almost against hope, that the stirring up which I had given to the cellular tissue would act beneficially upon the abscess and induce it to heal. The pus disappeared from the urine, the pain gradually lessened, frequency of micturition diminished, and I learnt some months ago that the patient had quite recovered her health, and that no trace of her bladder trouble existed.

I may incidentally remark that abscesses in communication with

the bladder are readily dealt with if the channel of communication is sufficiently large to be felt with the point of the finger, for a pair of dressing forceps can be guided through the dilated urethra into the orifice, and the opening enlarged; but in this case I felt it was hopeless to attempt to feel for an opening situated so deeply between the swollen folds of the mucous membrane and so minute as this was.

ILLUSTRATIVE PROSTATIC CASES.

I attempted some years ago to scoop out a prostatic collection of crude tubercle by dissecting between the rectum and the prostate from the perineum, but could not reach the gland on account of the intimate adhesions between it and the rectum. The relief was most striking; the patient lost his distressing irritability and pain in a great measure, but, of course, the improvement was temporary, and I believe he died two years after.

The relief experienced was due, I submit, to the drainage of the cellular tissue around the base of the bladder.

Perhaps the most important and convincing case I can lay before you concerns one of our profession.

A powerfully-built man of 53, who had held an important position in Africa with *éclat*, came to me for the relief of a chronic prostatitis which had troubled him for some years, but which during the last two years had evoked a curious train of neurasthenic symptoms. If he sat down he felt before very long a tickling in the vicinity of the prostate, which at first was slight, but which gradually increased, until it became transformed into a horrible and distressing feeling of stabbing and itching, which spread all over his genitals, and forced him to scratch these parts with violence. This wave sometimes burst upon him with such intensity, and the scratching had to be so severely carried out, that an orgasm like that of coition supervened, no emission, however, taking place. To avoid these diabolical feelings, as he termed them, he was reduced to painting the parts constantly with a 25 per cent. solution of cocaine, to sitting on his hip, or well back on the sacrum, and even this analgesic and these positions were often unavailing. His condition was most pitiable. His genitals were scored with finger-nail marks and his mental despondency was desperate. Most forms of treatment had been

attempted and had failed. I discovered a stricture of large calibre, and divided it, but with only temporary relief. After a year's patient trial of known remedies, including counter-irritation with iodine, I made a transverse perineal incision in front of the anus, and dissected between the prostate and the rectum, and drained. He has been perfectly relieved by this procedure, and I saw him last week the picture of mental and bodily health.

Indications for Aseptic Counter-Irritation.—I would suggest, in obstinate inflammatory conditions of the urinary organs of a subacute type, which have resisted ordinary methods of treatment, that an incision may be made over the offending viscus and the cellular tissue in their immediate neighbourhood freely opened with a carefully aseptised finger, the wound being subsequently drained from a week to a fortnight.

Dangers.—The aseptic surgeon has entirely lost his fear of the cellular tissue, as he has of the serous cavities, and the parts around the bladder and kidney are nowadays explored freely and without danger. I have myself explored the kidney region over 70 times, and the suprapubic region over 60 times, in performing various operations, and I can only record one case in each section in which the cellular tissue was dangerously affected by leakage from the diseased organ, a condition which would not, of course, occur, if the organ is left untouched as it is by the procedure I advise.

On the other hand, it is difficult to conceive anything more detrimental than a cellulitis set up by a slovenly septic surgeon. Nor is it easy to realise the damage which may be caused by a surgeon breaking into a tubercular or carcinomatous deposit and permitting the infecting contents to spread themselves over the area which has been laid open merely for drainage.

Mr. MARMADUKE SHEILD said that cellulitis was excited in the course of operations rendered necessary by the condition of the bladder or kidneys, and it was therefore open to the criticism that it was rather the operation than the consequent cellulitis that afforded the relief. Referring to the case in which an abscess in the neighbourhood of the bladder had been diagnosed by the cystoscope to have burst into that viscus, he observed that the author had enlarged the opening of the abscess, and after cutting down upon the supposed abscess and not finding it, he had inserted a drainage tube, the patient then getting well. He (Mr. Sheild) suggested that this was a very remarkable history, and, speaking under correction, he asked whether the author was not of opinion that abscesses bursting into the bladder were the most intractable affections that could

well be met with, and whether it was not the general experience that they did not usually get well until the cause was removed or they were thoroughly drained. He asked for some further explanation on this point. He supposed that what the author was aiming at was the great principle of what used to be called counter-irritation. For instance, in inflammatory affections of the bladder they were all aware of the benefit that sometimes followed blistering the perineum or irrigating the inner sides of the thighs. That was an established fact in clinical practice, and he thought that the author's cases pointed to a further elucidation of that principle. He had, however, failed to follow the author when he said he would excite cellulitis by an incision, and he asked whether the incisions made by him were not undertaken rather by way of operation than for the purpose of exciting inflammation. The paper hardly justified its title.

DR. AMAND ROUTH asked the author whether he was quite sure that he had succeeded in exciting a fresh cellulitis in the cases he had described. From the description given this was doubtful, for in all the cases cellulitis probably already existed. If, however, fresh cellulitis was started, one would expect to find that adjacent organs, previously mobile, became fixed, but no mention of this was made. It was possible also that if a new cellulitis were set up, it might get beyond the author's control, spreading along continuous planes of cellular tissue, like the "remote" parametric phlegmon, described by Matthews Duncan. He asked the author how he proposed to control the course of a cellulitis thus set up, for with bowel adjacent it could hardly be kept aseptic. His own impression was that the drainage, which the author wisely adopted after making the incisions, had really been the means of doing good, and that there was no evidence of cure being due to the induction of cellulitis. The drainage would also tend to relieve any cellulitis existing before the operation.

MR. FENWICK, in reply, said that Mr. Sheild had admitted the analogy between the procedure he advocated and the old-fashioned seton; that was the point of his paper. He thought that in abolishing the seton, the blister, and the old-fashioned poultice, surgeons had deprived themselves of one means of diminishing internal inflammation. As aseptic surgery could excite a greater counter-irritation than was possible by the older methods, and as the counter-irritation could be controlled in severity by limiting the introduction of germs, he submitted that a distinct advance had been made. He allowed that in some of the cases quoted in the paper, the incisions had been made mostly in course of abortive operations: but these were the cases on which he had built up his proposal, and he had purposely quoted them to indicate the steps he had taken. He apologised for having curtailed his remarks on the case of pyæmic abscess in the cellular tissue of the pelvis breaking into the bladder. Mr. Sheild had evidently misunderstood the brief outline which he had given. The history of this case was very remarkable. In January, 1894, the patient had had a miscarriage, followed by pyæmic abscesses in the wrist, elbow, and other parts of the body, all of which were incised. She ultimately recovered with ankylosis of the elbow and wrist, but just when her medical man thought that all trouble was over, she began to pass pus in the urine and developed all the symptoms of acute cystitis. There was an abdominal swelling feelable above the pubes, apparently marking the site of the inflammation and suppuration. The abdominal pain she suffered was probably largely due to localised peritonitis. When this

subsided she was sent to London to be examined by a gynæcologist, with the electric light, but the opening of the abscess into the bladder was not discovered, and it remained uncertain where it had actually burst. The gynæcologist under whose care she came declined to do a laparotomy in search of an abscess sac, which might not be in the pelvis proper, but in the pelvic cellular tissue. No benefit followed from the treatment advised, and some time later she had been sent to the author for a further examination of the bladder. On looking into the bladder he was confronted with the peculiar phenomenon he had described, viz., semi-solid pus being squeezed through a minute aperture and issuing in the form of long tape-like pieces of white pus. The impression left on his mind was, that there was a very tense abscess sac on the right side of the bladder, low down, which was gradually forcing its inspissated contents through a small opening into that viscus. It was not without considerable difficulty that he succeeded in introducing, by way of the urethra, the point of a probe into the aperture whence these tapes of pus were being extruded. He accomplished this under control of the light, both probe and cystoscope being in the bladder at once. When at last he succeeded, a large quantity of pus was suddenly freed and escaped alongside the probe into the bladder, obscuring the light, rendering it impossible to see anything more. He attributed a great deal of the subsequent difficulty in finding the abscess to his having allowed a great deal of pus to escape. He then put the patient into the Trendelenberg position and performed laparotomy, expecting to find that the pelvic abscess had originated in the ovary. He found, however, the pelvic floor entirely free from disease, and the ovary sound. He, therefore, came to the conclusion that the abscess was beneath the peritoneum. He then attacked the sac from below by cutting through the roof of the vagina, but failed to open the collapsed sac by this route, though the exploration was free. He, therefore, contented himself with draining the vaginal roof incision in the hope that the stimulation of the neighbourhood of the abscess would, with the enlargement of its orifice into the bladder, be sufficient to provoke healing. After this the pain diminished and finally disappeared, the pus and the irritability vanished, and the patient was cured.

A CASE OF NASAL POLYPI CONTAINING BLOOD-CYSTS.

By W. SPENCER WATSON, F.R.C.S. Eng., M.B. Lond.

As an introduction to the case related below I will in the first place quote from Zuckerkandl's work ('Normale and Pathologische Anatomie der Nasenhöhle,' vol. ii), where he describes appearances seen in the cadaver representing approximately what was the probable condition of the parts in my own case before operating. Zuckerkandl prefaces his reports by the following remarks :—"The formation of cysts in polypi is often noticeable ;

complete cystic degeneration of such growths is more rare." He proceeds to describe two cases of the latter kind :—

CASE A.—In this case "there are two cystic polypi close to one another in the right nasal cavity ; one is attached to the uncinatè process, and the other to the free border of the superior turbinate of the ethmoid. In many spots the nasal mucous membrane is thickened and marked by wart-like growths. The posterior extremities of the turbinals are swollen, and that of the inferior has a small papilloma attached to it. After removing the middle turbinal, no crescentic cleft is visible, as is usually the case, for it is hidden by a large growth, which, with its base, occupies the entire breadth of the balla ethmoidalis. The tumour is of a gelatinous consistence, and presents on its surface many rounded boss-like projections, from which when pricked a clear fluid exudes. A second polypus is attached to the free border of the upper turbinal. It is smaller than the other and is likewise dotted over with cysts which form roundish elevations. From the external surface of this polypus a secondary small plug-like growth extends ; this is closely applied to the middle turbinate, and where they meet the mucous membrane of the turbinal is covered with cysts. It is obvious that the pressure upon the contiguous membranes has closed the openings of the glands and thus caused retention of the secretions. Cysts are found scattered throughout the lining of the ethmoidal cells, and some of them are as large as a bean."

CASE B (*with drawing*).—"A large cystic polypus adherent to the external wall of the nares.

"On the right side the cystic growth hangs by a short thick pedicle and is larger than in Case A ; it completely fills up the middle meatus and contains many cysts, varying in size from that of a hemp-seed to that of a lentil, or even larger, and closely packed together. The septa between the cysts are some of them thick and others thin, and composed of sinuous connective tissue, which in places exhibits obvious and considerable infiltration with round cells. Here and there the septa have disappeared and several cysts have become confluent, forming large cavities. On the free surface of the growth the wall of the cysts is very thin, in places quite transparent, and composed of connective tissue with but few cells. The epithelial lining of the cysts is well preserved. The contents of the cysts are in part finely granular, in part made up of small lumps. The peduncle of the tumour consists in great measure of a connective tissue stroma containing round cells, in which, in addition to well-preserved glands, acini are to be found in a state of cystic degeneration. The middle of the peduncle is occupied by a broad layer of bone, which corresponds with the elongated uncinatè process, and is remarkable for its great softness. The external portion of the cystic growth *is not free, but altogether adherent to the external wall* of the nares and to the dorsum of the inferior turbinate, a peculiarity which I have not observed in any other case. This accounts for the fact that there is nothing to be seen of the hiatus semilunaris, the infundibulum, and the openings of the frontal sinus and for the antra, which are altogether involved in the adhesion.

"Attempts to separate the cystic growth bring away at the same time the mucous membrane of the external wall. Under the microscope the outer side of the tumour is seen to be covered by a thick coating, in which glands in a corresponding state of cystic degeneration can be made out. A growth such as that described could not be removed by means of a wire loop."

In both the above cases it is noted that the antra maxillaria were lined by a thickened membrane closely adherent to the bone, and containing glands which had undergone cystic degeneration.

No clinical history or account is given of these cases.

I now come to my own case, of which the history is as follows:—

CASE.—Mr. J. J. M., aged 51 years, an indigo planter, who has lived many years in India, was sent to see me by Dr. George Johnston, of Manchester Square. He is a well-built, muscular man of about middle height, accustomed to athletic exercises, and to training horses and steeplechasing. In the course of his life he has met with several severe injuries, having twice broken his collar-bone, had a starred fracture of the patella, and broken the bones of his face and head, besides suffering from falls and bruises too numerous to take any account of. His complexion when I first saw him was of a livid bluish tint, almost purple, and his breathing almost entirely by the mouth, with evident obstruction of both nares, and with a characteristic nasal voice and muffled articulation. He was subject to violent noisy paroxysms of sneezing, but in spite of the obstruction to his breathing and loud snoring, had always been and was then a good sleeper. The nose is much disfigured by various injuries, the right side being marked by cicatrices and somewhat flattened out on the cheek. The bridge maintained its position, though slightly depressed at its upper part. The obstruction to nasal breathing had been going on for years, but had only become complete about six months before I saw him.

He had had one injury to the nose in early infancy, a second when 25 years of age, due to a kick from a horse, and a third 15 years ago, as an immediate result of which his nose was, as he expressed it, “all over his face.”

He has always been subject to colds, with sneezing in loud but not very long paroxysms. He has never had asthma, nor is asthma known to have attacked any member of the family, which however has a phthisical history. He himself was, as a young man, supposed to be consumptive, but although he had a slight cough recently, he was, he thought, now quite free from any consumptive tendency. His chest was well formed and his frame well nourished. He smoked cigarettes all day long, with short intermissions, and was taking alcohol freely, but had never been an excessive drinker.

Condition on June 19th, 1893.—The right nostril has a narrow vestibule, from the septum being pushed over to the right side, and so leaving a narrow chink between it and the outer wall. This narrow space is occluded by polypi. On the left side the vestibule is normal in size, and occupied at its upper part by a closely-packed yellowish semi-translucent growth. There are no visible polypi in the naso-pharynx, nor can any be felt there by the finger passed into it through the mouth. Polyp have been removed at various times; on the last occasion three years ago, when only small pieces were removed.

The snare (here shown) was passed in (after cocaine had been freely applied) on both sides, and several large pieces of polypus removed from the left side. A larger one was removed from the right side by means of the “ring-knife.” Mr. M. declared that the operations were

(To face p. 83.)

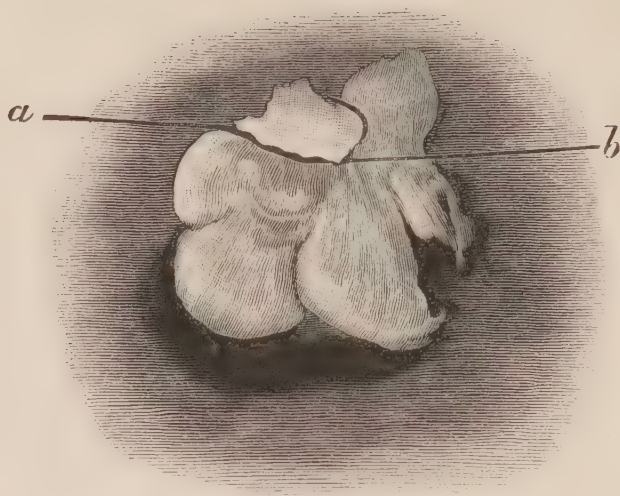


FIG. 1.

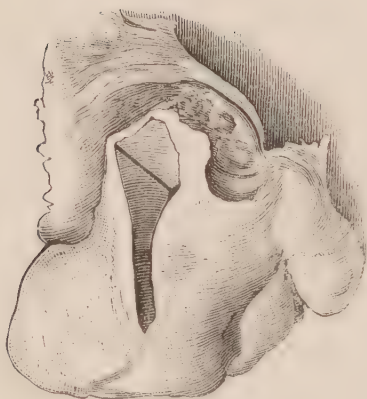


FIG. 2.



FIG. 3.

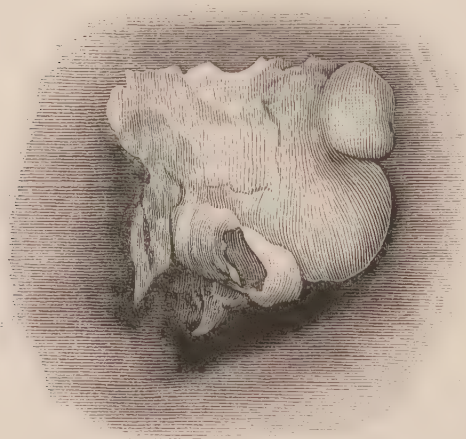


FIG. 4.

painless. On June 29th, July 6th, 14th, 17th, and 20th, similar operations were performed, somewhat large polypi with broad bases being removed on each occasion.

(Drawings and preparations here shown.) See Plate, Figs. 1, 2, 3, and 4.

On July 19th and August 22nd the electric cautery was applied, and some smaller remaining polypi burnt off by the cautery loop.

Mr. M. returned from an excursion to the Isle of Skye on November 13th, *i.e.*, about ten weeks after the last of these operations. The breath-channels were quite free, the voice improved most markedly, and he expressed himself as feeling perfectly well. No polypi were then visible in the nasal fossæ. He shortly after returned to India, and his brother, a medical man on leave from Calcutta, reported that he saw him about Christmas last, when he was quite free from all nose trouble and thoroughly well in all respects. Further reports of a favourable progress have since been received.

The microscopic sections and the mounted specimens in the jar, show that the polypi are for the most part made up of a myxomatous matrix studded with cysts, the result of degenerated glands. Some of these cysts are occupied by firm adherent blood-clot, and some are distended by dark venous blood which in the recent state gave some of the masses the appearance of nævoid growths. Some of these cystic polypi are broad-based, and well illustrate the remark of Zuckerkandl that they cannot well be removed by means of an ordinary snare. They were firmly attached to the outer walls and could only be detached by the employment of a cutting edge, such as that of my "ring-knife," which was very useful in this particular case.

A few, however (as seen in the mounted specimens), were pedunculated, and had the naked-eye appearances of ordinary gelatinous polypi. On cutting into them, however, they were seen to be studded with very minute cysts, some visible without the use of a lens, but others visible only when sections were examined under the microscope. Each cyst was seen to be lined by a more or less perfect epithelium, and to have *débris* of gland-cells, and in some cases blood lying loose in their cavities.

Of those shown the most striking and unusual specimen is that figured in Plate, Fig. 2 (one of the two central pieces in the preparation jar). It is flattened and broad-based with closely aggregated cysts and a firm, almost cartilaginous intermediate tissue. When fresh it had a purplish-red colour, due to blood contained in the cysts, which are well seen in the preparation to be filled with firm clot in some parts, whilst in others the cavities are now empty, but when fresh contained either stringy mucus or

fluid blood. These cysts have the appearance of glands which have undergone degenerative changes. Mr. Targett (of the Coll. of Surgeons), however, to whom I am indebted for making microscopic sections and examining them, tells me "that he regards these cysts as the results of invagination of the surface epithelium in the form of crypts, and that in this respect the cystiform mass resembles the tonsil; that sections of these depressions look (in microscopic specimens) like rounded spaces lined with epithelium, and possessing a distinct lumen. The blood cysts he regards as of similar origin, but altered by accidental hæmorrhage." The blood within them led at first to a suspicion that we had to do here with a nævoid tissue, but this is rendered improbable, first, from the fact that a similar blood-cyst occurred in other polypi, as, for instance, in the specimen depicted in Plate, Figs. 3 and 4, in which the position of a solitary blood-cyst near the margin negatives the idea of a nævoid degeneration; and, secondly, because in the removal of the growth by a cutting instrument there was very little hæmorrhage, and no hæmorrhage had occurred at any time during the treatment, or in the course of the previous history of the case. The fact that the patient had suffered many local injuries may, perhaps, account for the presence of blood within the cysts. There is a striking external resemblance in these specimens to the cystic growths represented in Zuckerkandl's delineations, and there can be little doubt that they are of the same nature, and occupied similar positions in the nasal fossæ. Bosworth, Robin, and Moure, report similar cystic degenerations of the glands in the nasal fossæ associated with polypoid growths.

The broad bases adherent to the outer wall of the fossa in these cases renders them very difficult of removal by the ordinary methods, and I therefore wish to emphasise the advantage of the use of the ring-knife whenever there is reason to believe that a polypus thus situated is of the cystic variety. The diagnosis is not easy, but sometimes the superficial bosses and rounded prominences come into view after the removal of the more superficial growths, which resemble for the most part ordinary gelatinous polypi. The history of a long continuance of nasal obstruction after repeated operations, as in the case related, makes it probable (in the absence of evidence of the existence of hypertrophy of the hinder ends of the inferior turbinals) that the

obstruction is due to enlargement of the region of the middle turbinal, or of growths beneath it in the middle meatus. In such cases the removal of the middle turbinal may be necessary as a preliminary operation, but in my case I found the cystic growth without meeting any difficulty from the overhanging turbinal. Probably it had been absorbed by pressure or thrust so much out of the way that it was unnoticed.

As to the method of operating we had to deal in this instance with a patient of a truly Spartan temperament, a gentleman who made light of the most severe injuries, and who seemed to rather glory in the endurance of procedures which would have terrified more timid persons. I therefore operated with the aid of cocaine (20 per cent. solution with 4 per cent. of pure carbolic acid), and he assured me that he felt no pain, nor did he give any evidence of suffering. In such a case it is obviously better not to use a general anæsthetic, but, unless the patient has such heroic qualities, it is better to suggest the use of ether or chloroform, or, still better, nitrous oxide gas.

January 14th, 1895.

CYCLING AND HEART DISEASE.

By SIR BENJAMIN WARD RICHARDSON, M.D., F.R.S.

IN Paris, a few months ago, Dr. Petit read a paper at the Academy on Cycling and Heart Disease, with some comments on cycling generally, which attracted much attention from the medical world there. Cycling commenced early in France, and was followed by many medical men. Indeed, the first cycle I saw at work, in the year 1868, was in Normandy, its rider being a medical practitioner who made his journeys on his machine, a fairly good bicycle for that day. But the general use of bicycles and the introduction of tricycles passed most largely into this essentially mechanical country of England, where the art of cycling has made, in a single generation, a progress which in some senses competes with the railway system itself, and which is

destined to be one of the forces of the world. Under the initiation of some cyclists in France, a remarkable following, of young men especially, has recently been developed, so that the streets of Paris, like those of London, are filled with swift and skilful riders. Petit asserted that there might be 100,000 riders in Paris alone, amongst whom there must of necessity, he thought, be some, perhaps 1 per cent., who were suffering from heart disease. He himself had met with three cases in which persons who were riders had suffered fatal consequences.

The subject thus started has created a marked impression in this country, and from members of the profession several questions have been sent to me inquiring whether, in my experience on this matter, danger of heart disease is to be expected, since it happens that my experience in cycling is considerable. I have been a cyclist since 1877; have ridden with numberless riders of different ages and sexes at all seasons of the year, on roads and gradients of the most varied kind, and often for long distances. It has also been my privilege to preside for 10 years over a society of scientific cyclists, and to have heard there the opinions of the best of the fraternity on the many subjects connected with the work. I venture therefore to speak, with some original knowledge on the subject, to this strictly medical audience, upon a pastime and exercise which has become national, and regarding the effects of which the medical community ought, of all others, to be most interested.

There is what may be called a physiology, a pathology, and a practice derivable from observations on cycling, in the study of which many parts and functions of the body are concerned; but inasmuch as the effects of cycling on the heart have been the first of moment brought under observation, and as this one subject is large enough for even a series of papers, I shall confine myself to three points:—

- (1) The immediate effects of the exercise on the heart and circulation as observed on the rider.
- (2) The after effects as observed in the consulting room or sick chamber, with the conditions, in regard to the circulation and the heart, in which riding is favourable or unfavourable.
- (3) A summary of the more salient and practical considerations of a purely medical nature.

I.—IMMEDIATE EFFECTS ON RIDERS.

The exercise of cycling has an effect upon the body at large, but it is upon the heart and circulation that it tells primarily and distinctively. In this it differs from many other exercises. Rowing tells most on the breathing organs; the work of dumb-bells, and of other exercises where the muscles are moved without progression of the body, tells most on the muscles themselves; and long pedestrian feats, with climbing, tell on the nervous system. In cycling, as in running, the heart and circulation first give demonstrative evidence of important change of action. In all riders at all ages, in riders who are practised in the art, as well as in riders who are neither practised nor extreme in the work, there is, in the beginning of each attempt, a quickened circulation, although there may be no consciousness of the phenomenon. The pulse at the same time is full and bounding, and there is the further fact that throughout the ride there is a continued rapidity, not amounting to the same degree as at first, but, if the pace be even moderate, rarely falling under the hundred pulsations per minute. In men advanced in life the increase, relatively, is observed as in younger men, a circumstance that tallies with the rise of the senile pulse normally, as if senility were indeed a part of the second childhood. The rise of the pulse is considerably increased in the act of climbing ascents, with a fall on horizontal planes, and well-marked fall in descents, especially if the feet be taken off the pedals, as is the practice of accomplished cyclists. The strokes may come down to their natural number if the descent be long, and if there be no disturbing act that interferes with the cardiac motion, such as jerkings from a rough road, an interference by no means infrequent, and always detrimental to the rider, especially if he or she be of what is called nervous temperament.

While the pulse is increased in action, the heart, if examined during a few moments of rest in order to permit of auscultatory examination, is found to be of full bound like the pulse. The external impulse is very pronounced, and the sounds of the heart are full and determinate, with, not infrequently, an accentuation of the second sound. The dulness of the cardiac region is also extended, indicating that the cavities of the heart are at their fullest distension.

I do not think the practice of cycling, though it be daily continued, leads to steadiness or quietness of pulse. I have noticed that regular riders, as well as occasional, have quickened pulsation during the exercise. To some extent there is diminution in rate of rapidity, but there is never an actual return, at the time of movement, to the natural standard. It is often observable also that the pulse-stroke takes a distinct form on the sphygmograph. The impulse stroke is lengthened; the recoil is longer, and the angle is sharper than is normal; the third event from closure of the aortic valves is usually sharply marked, and, as is necessary owing to the rapidity, the strokes are near together.

The character of the stroke as a whole is very much like that produced by alcohol. There is at the same time this difference between the alcoholic stroke and the cycling—the alcoholic is not maintained for a long period; as the influence of the alcohol passes off, and the body begins to cool, the pulse begins to fall and occasionally to intermit, so that more alcohol as a stimulant is called for owing to the central failure of the circulation. In cycling, so long as the exercise can be continued, the increase of cardiac motion is continued, the act of movement on the machine seeming sufficient to keep the circulation in its vigorous tension. This accounts, I conceive, for the astounding journeys which the fully-trained cyclist can undertake when he is in his prime. The same accounts, I suppose, for his endurance against sleep, the circulation through the brain being one continued series of waves, by which the molecular repose occurring during natural sleep is suspended.

According to my experience, no rider on a cycle escapes the quickened motion of the heart, and Kolb, whose admirable work on the 'Physiology of Sport' betrays, at once, a truly observant and unbiassed judgment, comes to the same conclusion. The statement, as a matter of fact, is sufficient of itself to cause a degree of alarm to those who have not studied the question practically; yet, strange as it is, it is only fair to say that the mischief which follows the over-action does not, at the moment, lead to the appearance of any such amount of danger as might, *a priori*, be expected. I have never once in my life seen a rider so embarrassed by cardiac over-action as to cause him to feel it necessary abruptly to stop in order to dismount and seek rest. I have seen riders dismount from their machines in ascents because

of the difficulty of propulsion, and I have occasionally seen one who has complained of slight breathlessness, which soon has passed away; but I have never known one grow giddy or describe symptoms of angina or other indication of cardiac embarrassment. Indeed, there are some very peculiar facts bearing on the point, which are quite clear as facts though difficult to account for. For example, I knew a good and practised rider who, on his machine, could climb a hill I could not attempt, and who did not feel, on his part, anything peculiar; but this same rider, if he were asked to mount a flight of stairs on foot, such as the stairs of the Monument, would become almost incapable of doing the same after he had ascended a very short distance, would have to rest many times in the ascent, and would complain both of breathlessness and palpitation. We might be inclined to say, therefore, that cycling, though it increases the rate of the circulation so rapidly, is not injurious. There, however, I think we should be wrong, because there has not been length of time enough to determine from many cases what the ultimate effect of long-continued and hard riding may be. The evidence on this particular subject is unfavourable at a general glance, for it must be admitted that several accomplished and skilful riders have, after some years, succumbed prematurely, from diseases of the circulation, but there has been no sufficient pathological inquiry to prove in what way the damage was developed.

II.—AFTER EFFECTS AS OBSERVED IN THE CONSULTING ROOM OR SICK CHAMBER.

The physiological modification in the motion of the heart which has now been noticed, and which, I believe, is universal amongst riders, leads to the question of the after effects of riding by those who have already some disease of the heart or great blood vessels, such effects as we may witness in the consulting room or sick chamber. Dr. Petit suggests that out of 100 riders of mixed ages there is sure to be one at least who is affected with heart disease, and it is only fair to admit that his calculation is extremely modest. The wonder, therefore, is why so few suffer from the exercise in an immediate manner. He seems to have known of two or three sudden deaths from cycling, but he does not tell us how many hundreds of thousands of persons form the body of

riders out of which this conclusion was drawn. For my own part, since the year 1877, during which time my mind has been from week to week directed to records of cycling and cyclists, I can only calculate from five to six instances, physical accidents excluded, in which a cyclist has died immediately during the exercise, and I am not sure that in any of these cases the fatal condition was induced by the influence of the exercise upon the circulatory system of the blood, or upon the heart. It is just to say there may have been sudden deaths in this country during cycling, but it is quite unjust to affirm that all who have died thus suddenly have succumbed from heart disease, inasmuch as many of the catastrophes have occurred from direct lesion, over which the rider had no control and which might happen in any swift mode of motion. The scene changes when we have to consider continued effect for some years on those in whom the elastic tissues have lost much of their elasticity. It is certain that there are many men and women in whom the circulation becomes disturbed, and, if I may so express myself, distraised, by an arduous pursuit of the exercise; but fortunately there comes with this a saving distaste for the exercise which gives protection. You ask one who has been a cyclist why he has given up the cycle, of which, perhaps, he was once an enthusiastic supporter. He tells you that he has nothing to say against it, but for some obscure reason he has not felt inclined to keep it up, and that he has not ridden for many weeks or months. You look a little deeper in instances of this kind, and you detect that there is some feebleness of the circulation; that there is coldness of the extremities, an unnatural languor and inability to sustain fatigue, and a rather quick weariness, if exercise be tried on the machine. I have known a man who would think nothing at one time of riding to Barnet and back (20 miles), but would feel what he called invigorated by it, who at this time, after some ten years of the work, would be wearied at riding twice round the Regent's Park (4 miles). This change of condition goes by a kind of rule, but it admits of many and striking exceptions. I recall one example in which a gentleman who, as an enthusiastic rider, kept up the practice for a great many years, after he was an octogenarian, was so little influenced by the exercise except for good that he rode one day from London to Bedford (50 miles), and experienced little more fatigue than the youngest of his companions.

Reviewing the effect of cycling then upon the heart, while it must be admitted that as a stimulant it tells upon the heart in the most striking manner, quickens the circulation, and causes a rapid flow or flush of blood through the tissues of the body, it is the remote rather than the immediate effect, central and peripheral, that is injurious. Hence the reason why so many thousands of cyclists carry the exercise to an extreme degree, and are so rarely subjected to early fatal consequences. The experience is gratifying. At the same time it does not remove a second line of experience—namely, that long persistent stimulation from riding induces changes which lead to a gradual deterioration, due probably to degeneration of the elastic tissue and incompetency of that tissue to fulfil its little appreciated, but all important, functions in the body at large.

At the conclusion I will state a few general propositions in respect to the best medical advice that can be given to cyclists; but at this moment I will take into consideration the important question whether there are conditions of the heart and circulation in which the exercise requires to be specially regulated or forbidden. I quite agree with Dr. Petit that 1 per cent. of persons who ride the cycle are likely to be suffering at the time from some irregularity of the heart-beat, or from some form of valvular or vascular disease; and yet there stares us in the face the patent fact that thousands of persons of different ages are cycling, and are not becoming, to their own consciousness, victims of the exercise. Nothing has surprised me so much as the immunity of cyclists who are actually suffering from symptoms of cardiac disorder. I am perhaps making what may be thought to be a strange statement, and yet I am perfectly sure it is a true statement, that there are marked conditions, strongly objective conditions, of diseases of the circulation in which, though danger might be expected, benefit has arisen from the exercise. Let me name some of these.

Varicose Veins.—When cycling first became fashionable, there was great fear that a varicose state of the veins was likely to prove an objection to it. A member of our own profession consulted me on this point. He was devoted to the exercise, but was affected with extreme enlargement of veins in the lower limbs, the varicose condition extending into the thighs. He had for many years worn an elastic stocking, and it seemed to him

impossible that he could, with safety, continue to cycle; and yet, he added, "I have ridden for six months, and I must say that, if anything, the veins have decreased in size, while no unpleasant symptom has resulted." I advised that he should continue, in moderation, to use the cycle; that he should carefully watch the effects, and that he should permit me now and then to make a careful examination and measurement. This was carried out, and, it is proper to report, with very good results. A cure certainly was not effected, but the veins distinctly decreased in size, and he has continued without any new occasion for anxiety. One further observation he also made—namely, that if from any circumstance he ceased to cycle for some days, and was confined to sedentary work, an increase in the size of the veins always followed, an increase that passed away when the exercise was resumed. These good effects were produced, I doubt not, by the difference in the rapidity of the circulation. Under cycling the rate of the arterial circulation was increased; the course of blood through the capillaries was quickened; and, the column of blood through the passive veins flowed with greater ease and regularity. The passage of blood through the portal system would also be accelerated, as the function of the liver was being more actively carried on, a function the activity of which is certainly improved by cycling. The phenomena presented in the case just described led me to make further inquiries amongst other riders, and as varicosity of the veins is by no means an uncommon condition, I have been able to collect what I think leads to a conclusive detail. I am satisfied, because I have never seen an opposing fact, that cycling does not increase the varicose condition, and that sometimes it causes a decrease of it, although never an actual cure. I have twice seen an accident in this class of cases when, from getting off too hastily from a machine, the limb has been struck, a distended vein has been injured, and a profuse ecchymosis has followed; but such an accident is of course merely contingent, and suggests that persons with varicose veins ought to exercise greater care than those who are more fortunately placed.

Fatty Degeneration.—I have several times had occasion to see cycling carried out where there has been good reason to expect fatty degeneration of the heart. A typical case will present itself as follows:—A person of middle age will have been engaged in some sedentary pursuit which has prevented the due exercise of

the body, and has induced that kind of physical lethargy—which may be called desk or office lethargy—we all so fully understand. The body is too heavy; the secretions are sluggish; the face is pale; the mind is at one time dull, at another time irritable; a small portion of pedestrian exercise wearies the lower limbs, which have not sufficient strength to carry the body any distance; the circulation is feeble; there is digestive indifference, and there are occasional pains flying across the chest and extending down the arms, with slight difficulties of respiration. When the heart is examined it is found to be enfeebled. It is as if it were too small for the body, and the sounds attendant on the tension of the valves are obscure; or the second sound may be slightly accentuated, and there may be just a trace of intermittency. The symptoms give alarm, and cycling may seem a dangerous or hazardous mode of exercise in the face of phenomena which suggest an early stage of cardiac degenerative change. A few short cycle rides are tried, and it is found that they bring a relief that seems almost sovereign in its efficacy. The skin acts freely; the kidneys throw off a full amount of urine, often accompanied with a copious lithate deposit; the liver acts better; the mind is relieved, as if a cloud of oppression were lifted from it; mental work is more vigorously conducted, and the advantage of the exercise is extolled.

The question now before the physician, whether it is safe to whip on a circulation and a heart which have become so enfeebled, is answered by practice affirmatively. It seems at first hazardous to force the heart to increased efforts, but practice shows that danger is virtually *nil*, and that if cycling exercise be carried out with moderation, not every day, but two or three times a week, if it be done without strain from hill climbing, and if it be not too long continued at the same stretch, it proves as a rule an actual remedy.

Of the facts above stated I have had the opportunity of seeing some of the most singular illustrations, of which one is a sufficient example. A patient who, in early life, had worked with great assiduity in a sedentary occupation, turned, as he called it, “a corner,” and began to amass money. He continued to be successful, and still working on lived to his fiftieth year, when, having gained a large fortune, he determined to retire from business, occupy a small mansion, and “enjoy the remainder of his days.”

As not uncommonly happens to such a person, he, although a man of sound constitution and good heredity, fell gradually into a kind of physical and mental inertia. The leisure he had longed for became irksome: he grew unduly fat; he grew anæmic. For a time he tried to work in his garden, but that was insufficient, and indeed at last, after being on his legs for some hour or two, he felt it necessary to return to the house to find rest in the recumbent posture, and very often in luxurious sleep. In the course of a few months he became so easily tired, on exercise, that he could not walk half a mile; he was extremely nervous when any vehicle crossed his path, had occasional slight attacks of a gouty character, and extreme depression of mind. Various medical formulas and changes of diet were adopted in his case, but there was no improvement. His pulse became extremely weak, the heart's action so feeble, that, the chest being large, it was really difficult to make out the heart's sounds, and all the symptoms suggested the idea of fatty degeneration of the heart. He seemed to be the most unlikely subject in the world to be benefited by cycling at the period when these symptoms were present, a period when the tricycle was just coming into fashion.

I ventured, nevertheless, from the little experience I had then acquired, to recommend the exercise, of course in the most cautious and guarded manner. The exercise was commenced under proper training, and it astonished me to observe that in two or three days this gentleman could do his three miles on a level road, not only without discomfort, but with actual pleasure to himself, and with the sensation that he was much relieved by it, and better for it. Soon he took the reins in his own hands, and at the end of six weeks rode, one day, 15 miles, without the least fatigue, in every sense a healthier man. He soon became a very good rider; found pleasure in the work; did not hesitate to take his 35 to 40 miles a day; sat gracefully on his machine, and was as good a climber as I have ever seen. He lost two stones in weight, greatly to his advantage; got into thorough good health; kept up moderate riding, and to this day remains a splendid specimen of the value of the effort. It is worth while to observe that the effect of the exercise on the heart of this gentleman was from the first satisfactory. The motion of the organ was increased with advantage as to strength, so that the

sounds became completely normal, and the current of the blood through the tissues was improved.

Senile Failure.—I had before me another example, in which failure of the circulation appeared to be dependent on decrepitude from age, and in which cycling seemed to be equally useful. The patient in this instance was a man of over 75 years, who was, as is commonly said, breaking up. He was getting somewhat emaciated; was easily subjected to colds; bore the effects of cold indifferently; was able to take but little exercise; sought the fire and warm places, and was tempted to carry an extreme weight of clothing. He complained that his feet were very cold at night, and that he could not sleep until he got warm. While at a seaside place he commenced cycling exercise, for a temporary change, in accordance with advice which I had very cautiously given to him. He was at first a nervous rider, but by-and-bye, as he gained experience, he met the little difficulties one by one, and rode creditably. He wrote me one day to tell me how well he was getting on, and that, using my own language, he had become so master of his machine, it was to him something like a part of himself. There could be no doubt that he improved in every way; that his enfeebled heart grew stronger; that his breathing was much more free; that he was generally warmer throughout his body; that he was less susceptible to cold; that his appetite improved; and that, in short, to a considerable extent, he had renewed his life. Added to that, his life became much lighter in a mental point of view. He visited me two years ago, and, for his years, was one of the halest specimens one could wish to meet. He had continued his exercise in a moderate degree, and, as far as I know, he still lives.

I am forced to consider that in both these cases the exercise added a considerable term of life, and I do not know that any other exercise could have taken its place in the same desirable manner. Horse exercise, by the acts of mounting; by the vibration communicated to the body of the horseman; by the varied movements of the animal, in the walk, the trot, the canter, and the gallop; by the up and down motions on the saddle, and by the nervousness of being carried along in a course not altogether under the absolute control of the rider,—horse exercise is not in the least degree comparable with cycling in these cases. Walking, in any degree, is all but impossible, because the limbs have to

carry the weight of the trunk, and fatigue which is very wearing leads to more exhaustion than is balanced by the exercise.

Marked Valvular Disease.—It is quite astounding to me, in examining patients who are active, how they live through cycling work while yet they show distinct signs of cardiac valvular disorder. The late Dr. Bridgeman, of Berkeley, consulted me on this matter. He had as marked signs of mitral constriction with aortic murmur and regurgitation as I have ever listened to, and yet he persisted in riding the bicycle. To what extent the circulation was disturbed was shown by the sphygmographic tracings, which I took from his radial pulse. I was candid with him to the last degree, as was my friend, Dr. Walters, of Stonehouse, who took part in the examination; and the patient himself was fully aware of his state, but still he persisted in his course. He argued that his heart was the same before he commenced to ride the cycle, and that, instead of being embarrassed by the exercise, he was relieved by it, and had ridden in one journey from Berkeley to London. He insisted on making me see him mount and ride at a sharp pace to prove his skill. He never changed his determination whilst he had power to sustain it, and although he died quite suddenly at last, his death had no connection with any immediate strain or shock from the cycle. This is not a single experience of a similar character, and I am clear, unexpectedly enough, that the dangers of extreme valvular disease of the heart are not more frequently increased by cycling, an observation which explains the perplexity of Dr. Petit, that there are so many riders with heart disease, and comparatively so few sudden deaths, as a consequence of the exercise.

I do not name this subject to suggest that patients crippled by valvular disease ought to be allowed to ride the cycle. On the contrary, I usually advise them not to ride, because I do not know how to differentiate between what is a dangerous condition for the exercise and what is not dangerous. But it is my duty to point out the fact as it is, and not to let any ignorance of my own interfere with or blur the description.

Intermittent Pulse and Palpitation.—In this condition, ~~on~~ which I am often consulted, I was once most chary in giving an opinion as to cycling. I have, however, seen so many examples of persons who have intermittent pulse riding the cycle with safety that I have ceased to fear. Persons over 60 years of age have, as a

rule, occasional intermittency, and that intermittency is often brought on by flatulency, by indigestion, and by depression of mind. In such examples I have many times known that cycling has been of service. I now, therefore, do not prohibit the exercise when there is no more than intermittent action or palpitation; but I make the proviso that the exercise shall be taken on the tricycle instead of the bicycle, so that the patient can at any moment stop without alighting, and need not be on the continuous outlook and agitation which attend the more refined and watchful method of progression.

Anæmia.—Diverging for one moment from the heart to the blood, I state without reserve that cycling is most useful in the treatment of anæmia when it is prescribed with judgment. To women it is often quite a direct cure. Something, of course, is due to the outdoor air into which the exercise leads, but there is also a decidedly beneficial influence in the exercise itself, and in the improved character of the secretions which it evokes.

Effects of Overstrain in Cycling.—Hitherto I have spoken almost altogether in commendation of cycling, in so far as the heart is concerned. I must turn now to another side of the picture, and state that cycling may produce a chronic condition of the heart which is injurious. There are two classes of subjects who are affected injuriously. The first are those young persons, often mere boys, who are made to ply the machine, probably heavily loaded, for commercial duties and business. It is astonishing what an amount of work a youth can be trained to do. He can really do the work of a horse, owing to the weight of goods he can distribute, and the rapidity with which he can get through his task. Generally speaking too, the young people like the exercise, and are proud of showing off their skill and endurance; whilst their employers, knowing no evil from it, let them do all that can be done. The result is a greatly expedited circulation, and an extreme tension of the heart and arteries, these organs being as yet immature and easily over-expanded under improper pressure. The effects are not immediate, but they lead to hypertrophy of the heart, and to those derangements of the blood vessels which follow upon dilatation of the arterial circuit. Afterwards, when the maturity is completed, and the organs of the body cease to grow, there is disproportion between the vascular and the other systems, which means general irregularity of function; a powerful

left heart pulsating into a feebleness body, and a powerful right heart pulsating into the pulmonic circuit, must of necessity be injurious, and the truth is too well demonstrated in practice. I have seen this hypertrophy and cardiac over-action in so many instances, I am convinced that when it is more correctly and widely understood it will be accepted that cycling is a factor of what may be termed disease from occupation, and that some steps will have to be taken that will limit the danger. It is not always that the danger is connected with occupation. It is the fact also that many well-to-do youths, I may say of both sexes, by the enthusiasm and competitive work they throw into the exercise, become affected in a similar manner, and have to be restrained, when that is possible, from too great an indulgence in the pursuit.

The phenomena which indicate injury are broadly marked. In the first place, the action of the heart shows actual hypertrophy, on which it is needless for me to dwell before an audience so extremely familiar with the affection. But there are other phenomena I must not let pass. There is often developed a general vibratory condition of body which is mischievous. It is shown in various acts of movement and thought; it is shown in an unconscious or semi-unconscious bearing of the body, which even becomes sensible to the subject of it at particular moments, when great steadiness is called for, as when sitting for a photograph; it is shown in over-desire for rapidity of motion, as if it were necessary at every moment to overcome time and curtail distance by labour of the extremest degree; and lastly, it is shown in what is really a kind of intoxication for movement which grows on the mind by what it feeds on and keeps the heart under the impression that it is always requiring the stimulation of the exercise. It is no false inference that this craving, or desire, is very much like the craving, or desire, for alcohol, and that its effects through the heart and circulation are much the same in the end.

The fact strengthens a view I have long entertained, that all cravings and impulses spring from the heart as from their centre, or magazine, and not from an independent brain; as if, in short, the heart were the mind centre of motive desire and action.

I retain as the last point, under the present head of my discourse, the extreme conditions seen in those remarkable athletes who enter into competitions that have never before been dreamed

of in the history of the world. Because these new phenomena have crept into the world, and because they have as yet excited little comparative notice physiologically, they convey the strange intelligence that men have been found able to travel, by virtue of their own bodily energy, 500 miles, almost without stopping or sleeping, in 24 hours—a result that would have seemed, even half a century ago, an actual impossibility to the most philosophical and least biassed mind. In such a feat the work done by the heart is even still more astounding. If we calculate on Dr. Parkes' estimate that the daily work of the heart is 106,000 pulsations, yielding the equivalent task of raising 122 tons one foot, and if we add to that one-third more of work due to the cycling—a very modest addition—we shall find that the heart of the cyclist accomplishes a labour equal to lifting 200 tons' weight one foot, and this without rest or sleep.

It is not, as it seems to me, within the range of possibility that such feats can be repeated many times by one person without mischief to the heart. I have said so to cyclists many times, but one of the cycling athletic leaders asserts I am not fair to his class. He urges that I have reasoned from the bad results I have seen (and which he does not question) amongst riders who have not sufficient stamina, and who have been led by ambition to do more than they were fitted to do. "The best athletes," he affirms, "do not suffer." I do not wish to be unfair, but I certainly have observed two facts: firstly, that the best athletes do not appear capable of keeping at their best for many years; and secondly, that several, who are not quite the very best, bring on themselves the most serious diseases which cut short their promising careers. The central change in them is in the heart and circulatory system. The heart becomes large, irritable, extra sensitive, and easily intermittent. The arterial vessels are distended, their elastic tissue enfeebled, and their function, as regards nutritive repair, imperfect, in which state the very activity of the heart is a source of deeper degeneration and break-up of the system generally. That I should have witnessed this order of change once would be sufficient excuse for bringing forward the risks of extreme cycling, and for venturing to draw the attention of my brethren to it; unfortunately, more than once has the fact been under my observation.

III.—A SUMMARY OF THE MORE SALIENT MEDICAL AND PRACTICAL CONSIDERATIONS.

The subject of heart disease from cycling is so novel, so little time has been allowed for observation upon it, and the morbid anatomy arising from it has, as yet, been so nearly *nil*, I may be very brief on the head of practice. I will say a word or two before leaving the paper to your criticism.

Firstly.—Cycling, when carried on with moderation, may, in so far as the healthy heart is concerned, be permitted, or even recommended, by practitioners of the healing heart.

Secondly.—In all cases of heart disease it is not necessary to exclude cycling. Cycling may even be useful in certain instances where the action of the heart is feeble, and where signs of fatty degeneration are found, since increased muscular exercise often improves the condition of muscle and of no muscle more than the heart itself.

Thirdly.—As the action of cycling tells directly upon the motion of the heart, the effect it produces on that organ is phenomenally and unexpectedly great, in regard to the work it gets out of it.

Fourthly.—The ultimate action of severe cycling is to increase the size of the heart, to render it irritable and hyper-sensitive to motion, the cycling acting upon it like a stimulant.

Fifthly.—The over-development of the heart under the continual over-action and extreme over-action affects, in turn, the arterial resilience, modifies the natural blood pressure, and favours degenerative structural change in the organs of the body generally.

Sixthly.—A fact that has only been incidentally noticed in this paper is worthy of notice—namely, that in persons of timid and nervous natures, “neurotics,” the fear incidental to cycling, especially in crowded thoroughfares, is often creative of disturbance and palpitation of the heart, and ought to be taken into account in preventive advice.

Seventhly.—In advising patients on the subject of cycling it is often more important to consider the peripheral condition of the circulation than the central. Enfeebled or worn-out arteries, that is to say, may be more dangerous than the feeble heart, and, when connected with a heart that is over-active, are seats of danger. This same remark would, of course, apply to cases where, as in aneurism, there is local arterial injury.

Eighthly.—Venous enlargement seems rather to be benefited than injured by cycling, and conditions marked by sluggish circulation through veins are often greatly relieved by the exercise.

Ninthly.—There are three sets of acts which are most injurious in cycling. (a) Straining to climb hills and to meet head-winds. (b) Excessive fatigue. (c) The process of exciting the heart and wearing it out sooner by alcoholic stimulants to the omission of light, frequently repeated, and judiciously selected foods.

Lastly.—The time has arrived when practitioners of medicine everywhere should make observations for themselves that confirm or confute these observations, and adding to them many more that I, of necessity, have omitted, in the brief period at my command.

The PRESIDENT was glad to learn that for all practical purposes cycling might be regarded as a perfectly healthy exercise, and considering the great amount of good the amusement had done in the way of providing sufficient air and exercise for so many thousands at home and abroad, such a conclusion would meet with general approbation. He gathered from listening to the paper that the action of cycling upon the heart was practically of no consideration whatever as compared with other forms of athletic exercise, such as running and rowing in races in early life, or with such an amusement as sparring, which was recognised to have a very disturbing influence on the circulation.

Sir B. W. RICHARDSON observed that rowing was rather a strain upon the lungs than on the heart. He certainly thought that cycling had less dangers in its wake than running, and vastly less than football.

Dr. SANSOM said he did not think that any medical practitioner could well appreciate the effects of cycling in either health or disease unless he had been somewhat of a cyclist himself. When one considered the elaborate precautions enjoined upon all persons who aspired to become cyclists (anthropometric measurements and the like), it verged on the ridiculous. He himself was by no means sure that Dr. Petit was right in affirming that 1 per cent. of all persons were, as regarded cycling, in some special danger in respect of the heart. He had subjected the question to a personal trial with the tricycle, and had done as much as 70 miles, and frequently as much as 40 or 50 miles in the day, on the old heavy machines, without any sense the next day of having overstrained himself, though none would accuse him of being an athlete. He disclaimed any intention of palliating the evil effects of overstrain, for in cycling, as in other forms of muscular exercise, there should be moderation. He had subjected this to an analytical survey in the Oration which he had delivered before this Society. He took the cases that had suffered from morbid acceleration of the heart for some years. It was only natural that many of the patients were suffering from the effects of athletic overstrain; but there was only one instance in which cycling could be decisively incriminated. With regard to irregularity of the heart's action, cycling was absolutely unrepresented. If one compared cycling with other forms of shock, mental and physical, it occupied a very low position. Among the other forms which appeared in the tables,

running to catch a train was perhaps the most frequent, and after that, over-nursing. Certain mental shocks, however, stood far above physical shock as predisposing to both forms of cardiac trouble. He was therefore disposed to agree with the author that the influence of cycling, on the whole, was very much more for good than for evil. He might even go further, and say that he considered it a valuable therapeutical means of dealing with valvular diseases of the heart. Oertel had strongly advocated graduated exercise in the treatment of valvular lesions and failure of compensation, and his claims were borne out by the facts observed. He himself thought, however, that cycling was a far less monotonous means of exercise than climbing mountains or stairs. He had seen many persons suffering from heart disease, not, of course, of a severe or serious kind (moderate valvular imperfections), in whom cycling had proved of considerable benefit. As a hygienic and therapeutical means he thought cycling had distinctly contributed to enhance the healthiness of the present generation.

Dr. MACGEAGH said he had had 25 years' experience of cycling, at first on a "bone-shaker," then on a tricycle that weighed nearly 80 lbs., and, later, on a bicycle. He had gone thousands of miles on wheels with the greatest benefit to his general health in the direction of reducing weight and increasing physical energy. The great point was not to ride up long hills, but to walk. He observed that he would rather ride 10 miles on a cycle than walk upstairs to the billiard room at his club. He had never experienced anything indicative of overstrain of the heart, the only unpleasant symptom being sleeplessness after a long journey. That occurred during the first stage of a tour, and generally passed away in two or three days. A great deal of the fatigue felt by certain cyclists was due to inexperience in planning the trips, doing too much at the beginning, and would not occur to one who was possessed of greater experience.

Dr. WASHINGTON ISAAC asked the author if he remembered the circumstance under which Dr. B. had discovered that he was suffering from heart disease. He had ridden thousands of miles with that regretted gentleman, and he owed this unpleasant discovery to his trying the then newly invented binaural stethoscope on himself. He himself had experienced the insomnia alluded to by a previous speaker, and had been in the habit of taking chloral after a long ride.

Dr. FLETCHER LITTLE said he too had cycled for many years, and in the earlier days his attention had been called in more ways than one to the tremulousness to which the author had alluded. In the older type of machine the vibration was considerable, and the proportion of cyclists who suffered from tremulousness was proportionally great. Since the introduction of the pneumatic tyre and saddle springs the cases had become fewer and were now seldom met with. As to the effects of cycling in valvular disease, it constituted, he was disposed to think, one of the best methods of treating dilated heart. By getting the patient to select a light tricycle with pneumatic tyres it was possible to reduce the effort and the vibration to a minimum. This was entirely in accordance with the views of Dr. Schott, of Nauheim, in his method of treating cardiac dilatation by opposed movements. He knew a certain number of cyclists, some of whom suffered from cardiac disease, and if they observed common sense precautions no harm followed their cycling.

Dr. SOLOMON SMITH agreed that there was a considerable difference between the effect of cycling and that of most other forms of exercise,

and thought that this was probably due to the amount of limb movement involved, compared with the amount of effort exerted. When the machine was so geared up that the movement was reduced to a minimum, while the actual labour was proportionately increased, then cycling appeared to come nearer to other forms of exercise, and especially to the action of riding up hill, which all seemed to agree was a thing to be avoided. He therefore suggested that high gearing detracted from the advantages of cycling as an exercise, and thought that when persons were advised to take to cycling as a matter of therapeutics they should be directed to choose a machine with a low gear, so as to obtain a maximum of limb movement with a minimum of muscular labour, in other words to secure a predominance of exercise over exertion.

Sir B. W. RICHARDSON, in reply, said the question of cycling with valvular disease was quite an open one. The tracing he had passed round of Dr. B.'s pulse was, so far as he knew, absolutely unique. It indicated an up and down stroke only, as if the valves were non-existent, as if there was nothing between the impulse sending the blood on and the recoil. Yet that gentleman appeared to have ridden after as well as before the discovery of the condition of the heart apparently without any sensation of discomfort or danger. In advising on cycling to persons with valvular disease he himself was always very careful to state plainly the exact circumstances and risks, and to leave the responsibility of deciding on the patient. He raised the question whether in the presence of disease of the right heart, cycling could be indulged in with equal impunity as when the left alone was implicated. Physiologically, one would not suppose that to be the case. Also whether if one set of valves were implicated and not the other the result would be different. He alluded to the fact that in listening to the heart one could sometimes make out words. In some cases, for instance, the sounds might be compared to "who's a-coming," in which case there was probably mitral with aortic disease; such patients were apt to die suddenly. That was the case with Dr. B. Running was certainly more dangerous than cycling. Man was not constructed to be a running animal, his vessels were not laid out for it, and when mental excitement was superadded, as in running to catch a train, the danger was certainly very much greater. Notwithstanding his long experience of cycling he did not feel equal to deciding the question as to the advisability of recommending it in valvular disease. It was not a matter on which he felt confident enough to warrant his expressing a definite opinion. He agreed with what had been said as to the sleeplessness which followed hard cycling, but that was somewhat outside the subject of his paper. Vibration had a good deal to do with unsuccessful cycling. He himself was probably the first to call attention to the effects of vibration, which it was extremely important to avoid. It told through the feet, through the hands, and through the spine, and he felt sure that much of the irritability of the circulation was attributable to this cause, and was consequently much less frequently observed with the modern make of machine. He could not admit that the nervous system was first involved; it shared less than the circulation, and he had never observed anything in the nature of paralysis or giddiness; in fact, everything seemed to centre in the heart. It was only natural that it should be so if one remembered the extraordinary increase in the heart beats from 75 to say 150. Discarding overstrain, he saw no reason to doubt that cycling was very beneficial to women, especially those with a tendency to anæmia.

January 21st, February 4th, and February 18th, 1895.

LETTSOMIAN LECTURES: ON THE COMBINATIONS OF MORBID CONDITIONS OF THE CHEST.

BY FREDERICK T. ROBERTS, M.D., F.R.C.P.

LECTURE I.

MR. PRESIDENT AND GENTLEMEN,—When, having accepted the honourable and responsible position of “Lettsomian Lecturer,” I had to face the trying question of my subject, the one which I have chosen kept forcing itself upon my attention, until at last an irresistible impulse took hold of me to attempt to grapple with it. I am afraid that to many here present the title “Combinations of Morbid Conditions of the Chest” suggests a very common-place, dry, and uninteresting discussion, and I daresay they will not be disappointed. The subject certainly does not appeal to that craving, may I say, morbid craving for novelty, and for something sensational and startling, which is so characteristic of the age, and from which even the medical profession is by no means free. I therefore feel it necessary to give two or three reasons for my selection. I take it for granted that the frequency and gravity of cases of chest-disease in every kind of practice, and in every grade of social life, must be familiar to all. Not only do they contribute to an appalling extent to the general mortality, but the sufferings and miseries which they inflict upon humanity are beyond all calculation. Therefore they are, at any rate, from every point of view well worthy of our consideration and practical interest. Now I hope I may not be charged with egotism or boastfulness if I remark that I have had opportunities of observing and studying these cases on a somewhat large scale, in all possible relations, and under a great variety of circumstances. From a very early period of my active professional life I recognised the fact that the majority of them were not nearly so simple as, from reading and instruction, I had been led to suppose; and with increasing experience I became more and more impressed with the importance of studying the combinations in which morbid

conditions of the chest present themselves in individual instances in actual practice. Of course I am fully aware that such combinations are well known to those who have had a similar experience, but my observation has forced upon me the conclusion that they are by no means so generally recognised and appreciated as they ought to be, while certain conditions which, in my opinion, are of real consequence, are often entirely ignored. It is too much the custom to look upon thoracic cases as if they were "cut and dried" examples of individual diseases, as described in text-books and lectures, with which we associate distinctive names; to apply to them terms and expressions which have in reality no definite significance; or to fix upon some one prominent physical change or condition, to the exclusion and neglect of all others which may happen to be present.

Another reason which, I confess, has strongly influenced me, in a collateral sort of way, in the choice of my subject, is that it gives me the opportunity of uttering an emphatic protest, in the form of a practical object lesson, against the absurd development of "specialism" in relation to this region, which at the present day is working such dire mischief; as well as against the narrow conceptions so widely entertained with regard to certain prominent modern theories and doctrines, in themselves of the highest importance, and the vagaries in so-called "scientific therapeutics" resulting therefrom. There are other tendencies besides, bearing upon the clinical investigation and treatment of chest affections, which, at any rate, it will do no harm to look at in the light of simple and straightforward facts.

Now, as regards chest-specialism, it certainly deserves recognition quite as much as the majority of specialties, but only within due and rational limits. In the first place, anyone who knows anything about the important structures which occupy this cavity, must recognise the necessity of being always prepared to study them, from a pathological and clinical point of view, not only in their more immediate connections, but also in their relations to associated structures outside the thorax, to the general or constitutional state, and to other organs and systems of the body. I make this remark because I feel bound to guard myself against even the possible suggestion which the limitation of my subject may afford, that chest-affections are to be looked upon as an altogether independent group. But when, as is so common now-

a-days, the practice is adopted of dealing with each thoracic organ as if it were entirely separate and distinct, or, still more, of making a "specialty" of particular complaints, such a practice becomes exceedingly dangerous, from several points of view.

Permit me now to offer a few words of explanation in relation to the title which I have adopted for these lectures. In the first place, the word "chest" is used in a comprehensive sense, and is intended to include all structures which are directly associated with this region. To think only of its more important contents, a not uncommon practice, is, to say the least, an incomplete conception of what we may at any time be called upon to deal with, clinically and therapeutically, in relation to the chest, and the structures which we have to bear in mind, and which I shall have to call attention in these lectures, may be conveniently arranged in the following way:—(1) The chest-walls, including the superficial and muscular tissues, as well as the bony and cartilaginous framework; (2) The diaphragm; (3) The lungs and pleuræ, with the trachea and its primary bronchial divisions; (4) The heart and pericardium, with the great vessels, both arteries and veins; (5) The less prominent contents of the mediastinum, including the œsophagus, absorbent glands, thoracic duct, certain important nerves and plexuses, thymus gland, and cellular tissue; (6) The abdominal viscera which are contiguous to the diaphragm, and which, though not actually contained in the thoracic cavity, come normally more or less within the space covered by the ribs, especially the liver, stomach, and spleen.

Next, as to the expression "morbid conditions," about which, by the way, it is essential to have a tolerably comprehensive and clear idea individually, before they can be intelligently studied in their different combinations. I include under this head both *functional disorders* and *organic changes*. I am well aware that not a few object to the term "functional" as applied to any morbid state whatsoever, but I must pass over this question, and will only say that, in relation to the subject with which we are now concerned, disturbances affecting the important functions immediately connected with the thoracic structures, usually of a temporary nature, not uncommonly occupy a prominent place. With regard to organic changes, these are of course of various kinds, but, speaking generally, they may be conveniently grouped as follows:—

1. Those which are not injurious in themselves, but are important on account of the physical effects which they produce, and this class of lesions are often the remains of some previous acute or active disease.

2. Permanent structural changes impairing the functions of organs.

3. More or less acute diseases or morbid conditions which may be regarded as temporary, inasmuch as, if they do not prove fatal from their extent or severity within a limited period, they, as a rule, clear up in the ordinary course of events, the involved structures being restored to their normal state.

4. Changes which are grave in themselves, either from the immediate danger due to some serious lesion; from their essentially fatal tendency; from being of a destructive type, or of a septic and infectious nature; or because they become the occasion of, or predispose to dangerous secondary lesions.

5. Morbid conditions, often obvious enough and persistent, but which in reality are of a curative or compensatory character. These may be quite harmless, or even in a way beneficial and helpful, but not uncommonly they become more or less injurious from a physical point of view, or they are accompanied with impairment of function, owing to the permanent damage done to the affected organ, of which they are the evidence and outcome.

I have thought it desirable to present this brief summary of organic changes in connection with the chest, in order to offer a needful warning, on the one hand, against ignoring or not attaching sufficient importance to the actual physical effects of structural lesions associated with this region; and, on the other hand, against paying too much attention to their mere physical aspect, and not endeavouring to realise as fully and clearly as possible their pathological nature and significance. I may remark that certain organic changes seldom if ever exist alone, but are the result of and associated with some other condition.

Proceeding on the lines of the explanation just given, I have next to deal with the title of my subject as a whole, and to speak of the "Combinations of Morbid Conditions of the Chest," in the comprehensive sense there referred to. My first duty then is to assert and emphasise the fact that a large proportion of chest cases, as they come under our notice in living patients, to say

nothing of undetected changes which we find *post mortem*, do present various combinations of morbid conditions, for which, as medical practitioners, we have to be constantly on the look-out, otherwise we are ever in danger of going astray in our diagnosis, of entirely misinterpreting the particular case with which we are immediately concerned, or of overlooking what may perhaps be its most important features. It is a relief to be able to affirm that many of these associated conditions can be readily and fully appreciated and understood by any well-informed and properly trained clinical observer; but sometimes they become so numerous and complicated, that it may be very difficult or even impossible to determine the exact state of things. A point which calls for notice here is that some cases become important, or even serious, simply because they present a number of conditions in combination, not one of which would, in itself, be of any material consequence. Nor must it be forgotten that we have to deal with many patients who complain of what may appear to us to be trivial symptoms or ailments, but which with due care we may find to be in reality the outcome of such a combination of minor physical causes.

I now enter upon the more serious business of these lectures, namely, to endeavour to classify under certain groups the chest-conditions and their combinations which are likely to be met with, in the hope that such a classification may be practically useful for future reference, and as a basis for the study of individual cases. I confess that I did not at the outset adequately realise or appreciate the difficulties of the task I had set myself, and the result is not by any means to my own satisfaction, but of course it is impossible for me now to draw back, and I can only hope that you will not deal with me or my efforts too critically. The subject is really such a chaotic one to start with, that it highly taxes one's ingenuity to attempt to bring it even within some degree of orderly arrangement, and to make the classification comprehensive without being too complicated. I need scarcely say that I do not pretend, in the time at my command, to enter into details, or to describe the numerous combinations of chest-conditions which I have personally observed. My object is merely to generalise, illustrating my remarks by the occasional mention of some specially instructive case.

Having completed this, the most important part of my subject,

I desire to indicate briefly some clinical lessons which its consideration suggests, especially in relation to the systematic investigation of chest-cases; and, in conclusion, to submit a few general remarks as to its bearing upon their treatment.

(A.) General Classification of Morbid Conditions of the Chest and their Combinations.

In the first instance I submit for your consideration a general outline or sketch of the course which I propose to take in discussing the part of my subject with which we are now concerned, as given in Table I, and this may afford some comprehensive idea as to the classes of chest cases in which we are likely to meet with various combinations of morbid conditions, while it brings out certain kinds of changes which demand separate notice.

TABLE I.

General Classification of Morbid Conditions of the Chest and their Combinations.

- I.—Conditions of chest-walls and diaphragm.
- II.—Slight or indefinite intra-thoracic changes.
- III.—Combinations of changes belonging to I and II.
- IV.—Secondary effects of certain intra-thoracic physical conditions.
- V.—Combinations of chronic chest diseases or their remains.
- VI.—Combinations in acute cases.
- VII.—Combinations due to accidental lesions or complications, usually sudden.
- VIII.—Combinations associated with sudden or acute disorders of function, temporary or paroxysmal.
- IX.—Combined conditions originating from the abdomen.

Without further comment, I proceed to deal with the first group mentioned in the list.

I.—CONDITIONS OF THE CHEST-WALLS AND DIAPHRAGM.

The chest-walls and diaphragm are, in the ordinary course of medical practice, treated with such scant courtesy, that I have felt it a duty, as well as quite a pleasure, to give them a table all to themselves, to which I now invite your attention.

TABLE II.

Conditions of Chest-Walls and Diaphragm.

- I.—Painful or other morbid sensations—Cutaneous hyperæsthesia.
- II.—Muscular disorders—Excessive irritability—Spasm—Cramp—Paralysis.
- III.—Superficial conditions — Cyanosis — Enlarged veins — Œdema — Subcutaneous emphysema—Eruptions—Scars—Excessive fat.
- IV.—Wasting of soft structures, especially muscles—Local muscular atrophy.
- V.—Alterations in shape and size—Small chest—Over-distended chest—General deformities—Unilateral and local changes.
- VI.—Softness of the ribs—Changes in rickets and osteo-malacia.
- VII.—Rigidity of the chest-walls.
- VIII.—Changes resulting from injury, or associated with particular diseases—Empyema—Peripleuritis—Aneurism—Malignant or other growths—Diseases of bones and cartilages—Sinuses or fistulæ—Actinomycosis.
- IX.—Congenital clefts or deficiencies—Rupture or perforation of muscles.
- X.—Conditions of diaphragm—
 - 1. Functional disorders—Spasm—Paralysis.
 - 2. Mechanical embarrassment or displacement.
 - 3. Acute inflammation.
 - 4. Adhesion to neighbouring structures.
 - 5. Chronic structural changes — Atrophy — Fatty degeneration—Fibroid changes.
 - 6. Rupture, perforation, or congenital deficiency.

That great clinical teacher—Sir William Jenner—used to impress upon us as students some important facts about the chest-walls; but my observation compels me to say that they are not as a rule regarded as of much account. I suppose that anyone who makes the slightest pretension to being a “clinical observer” could scarcely fail to be attracted by the more striking and prominent conditions mentioned in the table, such as subcutaneous cedema or emphysema, the presence of a growth, or an extreme deformity; but I wonder how often other less attractive changes are ever thought of, which in reality may be evident enough, and which in a large number of instances are more or less important factors, not uncommonly adding seriously to the sufferings and difficulties of the patient.

It would be altogether beyond the province of my subject to attempt to discuss in detail the numerous morbid conditions of the chest-walls and diaphragm; but I do wish to point out emphatically that these structures, and the former especially, are always

well worthy of consideration when dealing with thoracic cases, and that their relation to internal conditions of various kinds is often of decided consequence from several aspects. I shall offer a few illustrations in support of this claim, and must then ask your permission to deal briefly with certain special points. I may mention by the way that the skin of the chest sometimes, less commonly now than formerly, shows the marks of some energetic local treatment, by cupping, leeching, &c., which suggests that the patient had an acute intra-thoracic inflammatory attack at some time or other, likely to leave behind permanent changes, of the existence of which in the particular case it is desirable for us to be aware, but which we cannot definitely detect. Further, a scar may draw attention to a former operation for pleural effusion or empyema. As illustrations of the association of superficial conditions with those within the chest the following may be mentioned:—Painful sensations in many cases of internal thoracic diseases of different kinds are certainly connected with the superficial structures, whether neuralgic, “referred,” neuritic, pleurodynic, myalgic, or by whatever other name they may be called. Cutaneous hyperæsthesia is also sometimes very pronounced. Spasm of the muscles of the chest-walls may likewise be associated with some internal disorders. It is well known that pleurisy may be associated with herpes zoster, or an extensive burn or scald of the thorax, as well as with injury, and the results remain in the form of adhesions.

Again, several of the conditions enumerated in the table are the direct evidence and indication of important diseases or physical difficulties existing within this cavity; while others may be the only positive signs we have of the occurrence of special, and usually sudden lesions. Hence they are of great diagnostic value, and I shall have to allude to some of them later on from this point of view. On the other hand, certain states of the chest-walls are the occasion for the disturbance of the normal internal arrangements, as in the case of a cleft sternum, or when a ruptured muscle allows a hernia of the lung to take place, and the connection is then obvious enough.

Having given these general illustrations, I cannot resist making a few separate remarks upon certain individual conditions connected with the chest-walls, simple enough in themselves, and of very frequent occurrence in association with internal diseases, but which,

from their very frequency and simplicity, are constantly overlooked and neglected in practice.

1. *Wasting of the Superficial Tissues and Muscles.*—I need scarcely say that more or less wasting of the soft structures of the chest-walls, and especially of the muscles, is a very common factor in diseases of this region, being noticed most conspicuously, but by no means solely, in cases of phthisis, and it is one the local effects of which ought always to be taken fully into consideration. I do not suppose that in its minor degrees it contributes appreciably to the troubles of the patient, but even then it has to be borne in mind in relation to physical examination, otherwise it may lead to serious mistakes in diagnosis. When there is marked emaciation, however, the condition often becomes of decided consequence, as it adds materially to the difficulties of the acts of breathing, coughing, and expectoration, and contributes but too obviously to the distress and inefficiency of these acts, while under certain circumstances it may be an immediate source of danger. It is from this point of view that wasting of the muscles of the chest assumes a special importance in relation to my subject. There are some cases in which a local muscular atrophy is associated with internal thoracic conditions, but to these I need not particularly refer.

2. *Softness of the Ribs.*—This is a condition always to be thought of during early life, more especially in its association with different affections involving the respiratory organs, either directly or indirectly, although it cannot then be regarded as morbid, because it is natural to that period of existence. Any obstruction to the passage of air through the main air-tube, or even a slight bronchial catarrh, and still more a serious bronchitis or pneumonia, becomes, under the circumstances, unusually important, and its possible effects must be estimated accordingly. It is, however, in connection with rickets that softness of the ribs, as a morbid state, is so often met with, but this disease and its consequences are so familiar that I need not do more than allude to them in this general way, merely calling attention to their great importance, both immediate and remote, when associated with chest affections. In adults the condition is only of very rare occurrence, in connection with osteo-malacia, and I have never personally come into contact with a case of this kind; but I can well understand how seriously it would add to the troubles and dangers of a thoracic

complaint, however slight it might be, and I certainly should not like to have to deal with such a combination.

3. *Rigidity of the Chest-walls.*—The changes which take place in the frame-work of the thorax, leading to undue firmness or rigidity, with consequent interference with its mobility, amounting in extreme cases to absolute fixation, are of such common occurrence under a variety of circumstances, and are not infrequently of such conspicuous importance, that I personally make it an invariable rule to look for them when dealing with any chest-case, at any rate in subjects approaching or beyond adult life, and to endeavour to estimate their effects in relation to certain physical signs and symptoms. And yet my experience compels me to say that they seldom attract the notice they deserve, and are often absolutely ignored, even when of a very pronounced character. I therefore venture to inflict upon you a few observations on rigidity of the chest-walls, once for all, so as to point out its more important practical bearings in relation to my subject. The changes which produce the rigidity are well known, consisting of undue calcification of the ribs and sternum, with incomplete ossification or calcification of the cartilages; while changes also take place in the joints, which ultimately lead to their more or less complete ankylosis. Of course, these changes develop naturally with advancing age, and there is, at any rate, no excuse for overlooking them in old people. But the more or less “rigid chest” is quite frequently met with in individuals who have not yet reached middle life; and in the ordinary run of practice it is astonishing how often it is revealed in the examination of even young subjects. Under these circumstances it is generally obviously traceable to the effects of hard physical work, excessive indulgence in athletic and allied exercises, injudicious training for the public services, and like causes, but by no means always. I wish to draw special attention to the fact that the changes which lead to rigidity of the chest-walls may be but a part of the entire case, developing along with other morbid processes which are taking place within the thorax, or being in some instances probably the secondary result of these processes. Anyhow, we have to deal with such a combination of conditions in which this rigidity is anything but an insignificant factor. Occasionally one meets with a very fixed chest in young subjects, the explanation of which is not at all

evident. In some of these cases, at any rate, I am inclined to think that congenital syphilis partly accounts for the change.

The effects of a rigid chest are easily understood, and it is readily detected by physical examination. Speaking generally, its most obvious consequences are that it interferes more or less seriously with the respiratory movements, expiratory as well as inspiratory, the thoracic walls becoming in extreme cases absolutely fixed and immobile; and that it prevents their expansion under certain circumstances. Now in itself this condition may not lead to any obvious disturbance, but let it be associated with internal thoracic diseases of different kinds, and its effects become at once apparent, especially if the thorax happens to be of small capacity. It is remarkable, for instance, how it adds to the severity of the symptoms of, it may be, only a slight bronchial catarrh; while it becomes in itself a real source of danger when any pronounced acute inflammatory affection develops within the chest, and especially if it should lead to some definite physical condition which encroaches upon the thoracic cavity, such as pleuritic or pericardial effusion. The combination of a rigid thorax with various chronic internal conditions stares us in the face constantly, and the most casual observer cannot fail to note how it adds to the difficulties of the acts of breathing, coughing, and expectoration in the ordinary run of bronchitic, emphysematous, phthisical, and other cases which come before us in daily practice, while at the same time it materially modifies certain physical signs. There is one other point to which I desire to call particular attention. Rigidity of the walls may greatly limit or actually prevent the distension or expansion of the chest which should be the natural result of certain intra-thoracic conditions, and may thus be of serious consequence. The most striking illustration of this statement is afforded by a certain class of emphysematous cases. I need scarcely say that extensive vesicular pulmonary emphysema tends to cause general enlargement of the thorax, which up to a certain point may be regarded as an effort on the part of the natural man to accommodate himself to circumstances. But when this condition develops for the first time late in life, or in a person whose thorax has become prematurely rigid, such enlargement is either entirely prevented, or is so much curtailed and modified in its details, that it in no respect falls in with the ordinary description of an "emphysematous chest." Moreover, under these

circumstances the symptoms are obviously likely to be much more pronounced and troublesome than they otherwise would be. I have also met with not a few cases of enlarged heart, in which the rigid chest-walls would not yield, and consequently no cardiac bulging could be produced, but the organ was obliged to encroach upon the thoracic space, and to interfere with the other contents of the cavity as well as with the diaphragm, the symptoms being accordingly much more severe and trying than they need otherwise have been.

4. *Abnormalities in Shape and Capacity—Deformities.*—The conditions which come under this heading are extremely interesting in relation to chest affections, but time will not permit me to do more than offer a few general remarks concerning them. They are important in themselves, as well as in their connection with intra-thoracic changes. I hold that a chest of contracted dimensions and small capacity ought to be regarded as a “morbid condition,” whether it is the outcome of a natural delicacy of frame or of a want of proper development in early life, or is the result of internal disease. When primary, it is necessarily associated with a state of things within the thorax which undoubtedly predisposes to a certain class of diseases, and in course of time we are confronted with the manifestations of the combined conditions in many of the cases of phthisis which we meet with. In the opposite direction, a chest that is over-distended from any cause is in itself actually morbid, and is not merely an indication of some internal disease, a fact of which the athletes of the present day may well take note. The different unilateral and local changes in the shape and size of the thorax that so frequently come before us must also not be regarded as mere “physical signs” of various conditions, inasmuch as they themselves frequently constitute a part of the entire group of changes with which we are concerned. I take this opportunity, however, of warning against attaching an undue importance to slight changes of this kind. It is well not to jump to the conclusion that an infra-clavicular depression necessarily means phthisis, or that the bending forward of a rib-cartilage is the prominent sign of an aneurism.

There is one class of cases to which I must just allude more particularly in this connection, namely, those of pronounced

deformities of the chest, especially when resulting from spinal disease. They are often very sad and trying, if only on account of the immediate effects of the deformity upon the contents of the thorax, which are obvious enough, easily explained, and readily understood. When, in addition, the walls become rigid, while various acute or chronic intra-thoracic diseases supervene, which are by no means necessarily the direct outcome of the deformity, the entire complication is often very perplexing, while the symptoms are proportionally grave, and sooner or later the termination must inevitably be fatal.

5. *Conditions affecting the Diaphragm.*—I can now only refer you to Table II, where I have indicated in a general way the morbid conditions which may affect the diaphragm, and remind you that one or other of these conditions is, in not a few instances, an important factor in connection with intra-thoracic diseases, of which I may give some illustrations later on, and your own experience will probably call to your remembrance individual cases exemplifying this point.

II.—INDEFINITE INTERNAL CONDITIONS.

Under this head I wish to draw attention very briefly to certain changes which take place *within* the chest, and I term them “indefinite” because, though of very common occurrence, and in many instances easily made out by skilled investigation, they give rise to no evident symptoms, and, indeed, can often only be detected by methodical and careful physical examination. In some cases, moreover, their presence, though it may be reasonably suspected, is rather a matter of inference or guess-work than of actual demonstration. The conditions to which I allude are:— (1) Localised pleuritic, or possibly pericardial adhesions. (2) Ill-defined changes in the pulmonary structures, such as senile atrophy, lesser degrees of over-distension of the lungs or even of true vesicular emphysema, commencing degeneration impairing the pulmonary elasticity and expiratory force, and limited fibrotic changes, the remains of a cured phthisis or other past lesion. (3) The lesser degrees of atheromatous degeneration of the thoracic aorta and its main branches. (4) Atrophy, or early degenerative changes affecting the heart walls, or infiltration of its muscular tissue with fat. I may note by the way that the

viscera and other structures are in exceptional instances congenitally transposed, and this is a condition of an indefinite nature to be borne in mind as a possible accompaniment of pronounced intra-thoracic disease, especially in relation to the heart.

Most of the changes to which I have referred usually come on gradually and imperceptibly as the natural result of the "wear and tear" of life, or of other causes to which I have alluded when speaking of the chest-walls. Some of them, however, may be the remains of a past illness, of which the patient may be aware, or of which he has no distinct remembrance. Intra-thoracic adhesions even of considerable extent, are, as is well-known, not uncommonly found *post-mortem*, the origin of which cannot be traced, and the existence of which was not recognised during life. At the same time, I venture to assert that many such adhesions can be easily detected by proper examination, if there has been an opportunity for carrying it out in the living patient.

III.—COMBINATION OF CHANGES BELONGING TO I AND II.

I am afraid I must have tried your patience by dwelling so long upon conditions which may appear to be of minor importance, but I hope I have shown, at any rate, that they are worthy of more consideration than they are accustomed to receive, as factors in a variety of cases which come under our observation and treatment in practice. Before I pass on, I must ask your attention for a moment to a distinct group of cases, of which I have seen numerous examples, and which are characterised by the presence of certain of these conditions in combination, affecting both the walls and the contents of the thorax, and therefore assuming a degree of importance which they would not otherwise possess. In these cases the superficial structures are more or less wasted, it may be considerably; the chest-walls are obviously rigid; localised pleuritic adhesions can be made out, it may be in several spots; there are no gross lesions to be detected in the lungs, but these organs are evidently wanting in elasticity and tending towards degeneration, perhaps also exhibiting limited areas of emphysema, or there is a suspicion of a fibrotic change here and there; sometimes there are indications of commencing atheroma of the aorta, or the heart is feeble in its action, and is probably of actually small size. Now, I maintain that cases of this kind

ought to be definitely recognised, though it is difficult, or even impossible, to apply to them any particular designation. They do not exactly belong to the chronic emphysematous or the phthisical group, and can only be included under that somewhat vague category known as a "weak chest." The patients who suffer from this combination of changes are fully aware of their existence, for, at any rate, they affect their breathing powers considerably, while they render them extremely susceptible to the effects of even a slight cause likely to act injuriously upon the respiratory organs. Still, so long as they keep quiet, and consent and are able to remain in a comfortable house or room during the colder seasons of the year, or to reside in some more genial and suitable climate than ours, they get on very well. Let them, however, have even the slightest bronchial catarrh, or still more, a pronounced acute bronchitis or a pneumonic attack, and their troubles increase at once in a marked degree, while the danger to life also becomes, for obvious reasons, very serious, quite out of proportion to the acute illness in itself, and I know of few more anxious combinations of conditions to deal with in practice.

IV.—SECONDARY EFFECTS OF CERTAIN INTRA-THORACIC PHYSICAL CONDITIONS.

Although the point to which I wish to refer under this heading fairly comes within the scope of my subject, in order to render it complete, I do not propose to discuss it at any length, as the more definite combinations of conditions likely to be met with belonging to this group must be familiar to every well-informed medical practitioner. What I want to bring into prominence is the fact that, given a particular physical condition within the chest, others are likely, or in many instances, certain to be produced by it as secondary consequences, varying within well-known limits in their nature and degree according to circumstances. Hence it happens that the case presents itself as a more or less complex one, there being a combination of morbid conditions, which it is incumbent upon us to recognise, at the same time endeavouring to determine and estimate how far each contributes to the sum total of the clinical phenomena observed. It is too much the custom to look upon these secondary effects as mere "physical signs" of the primary condition, their real importance

in themselves being thus often overlooked, or at any rate not adequately appreciated. As illustrations of the more prominent conditions which originate this more or less complicated state of things, to some of which I shall have again to refer, I may mention a large fluid or gaseous accumulation in the pleural cavity, or a much thickened and extensively adherent pleura; pericardial effusion; marked general emphysema; and an intrathoracic tumour of any description, whether aneurismal, solid, or of other kinds. I may draw attention to one general fact in this connection, namely, that when from any cause the action of either lung is extensively interfered with, the opposite one almost necessarily undergoes compensatory enlargement, and the combination may be easily misunderstood unless due care be exercised.

V.—COMBINATIONS OF CHRONIC DISEASES OR THEIR REMAINS.

I now enter upon what is a specially difficult part of my task, and that is to try to discuss, in a way that shall be practically useful, the combinations of definite chronic morbid conditions of the contents of the chest, which come before us in such almost endless variety. In speaking of the remains of chronic diseases, I refer to what are truly morbid changes, but they are not active, and are often the manifestation of the arrest of destructive or other injurious processes, and of an attempt at repair of the damage.

After several essays to prepare a scheme or tabular classification, which would bring into prominence, as well as into some kind of order, the chief combinations of chronic diseases of the chest, I arrived at that given in Table III, which I submit for your consideration, though it is really little more than a list enumerating certain groups of cases, which may form a practical basis for the comprehensive remarks I propose to make under this heading.

TABLE III.

Combinations of Morbid Conditions in Chronic Cases.

A.—Respiratory Apparatus.

1. Pleuritic.
2. Pulmonary and Air-tubes—
 - (a) Phthisical.
 - (b) Emphysematous and Bronchitic.
 - (c) Chronic Pneumonic.
 - (d) Syphilitic.
 - (e) Mixed.
3. Pleuritic and Pulmonary.

B.—Pericardial, Cardiac, and Vascular.

C.—Respiratory and Circulatory.

D.—Special diseases : Aneurism—Glandular enlargements and Tumours—Hydatids—Actinomycosis—Œsophageal pouching.

E.—Independent diseases.

F.—Highly complicated conditions.

It will be observed that in some groups the changes are practically confined to one particular structure or class of structure ; in others two or more are involved, but in a large proportion of these cases the connection between the several lesions is sufficiently obvious and intelligible, if properly studied. Sometimes, however, the morbid changes are quite independent of each other, or they become so complicated that it is very difficult or even impossible to trace any distinct relationship between them. You will further notice that I have made use of terms which are familiar in our nosology, but I must again insist upon the danger of relying upon mere names and expressions, without really understanding what they severally signify, or what each is actually supposed to include.

A.—*Respiratory Apparatus.*

There are a good number of chronic chest cases in which the morbid conditions, though more or less complex, are practically confined to the respiratory apparatus, and these cases I now proceed to consider, following the arrangement adopted in the Table.

1. *Pleuritic.*—There is a definite class of chronic thoracic cases in which we have practically to deal with prominent morbid states of the pleura, and their immediate consequences. They have

either started in a well-marked attack of pleurisy with effusion; or have followed an empyema which has opened into the lung or been operated upon; or have sometimes developed slowly and imperceptibly. In exceptional cases they appear to have originated in a limited pneumothorax, which has probably been associated with phthisis, the progress of this disease having been checked by the pleural lesions. The large majority of chronic pleuritic cases are simple enough, but in some instances the conditions are decidedly complicated, and we may meet with various combinations of adhesions, great thickening, localised collections of fluid, or possibly even the remains of a pneumothorax or pyo-pneumothorax. Nor must I forget to note here that the pleura may be the special seat of an extensive tubercular or malignant infiltration, which still further complicates matters.

The important practical lesson for us to bear in mind is, that when brought into contact with what is obviously a chronic pleuritic case, we must not jump to the conclusion that we have to deal simply with an effusion, a conclusion to which a careless examination might easily lead; and we must always further remember the possibility of some of the conditions being of a very grave nature.

2. *Pulmonary and Air-Tubes*.—Of course there is no definite line of demarcation between the bronchial ramifications and the other tissues which enter into the construction of the lungs, and it is a familiar fact that they are all more or less implicated in a large number of cases. Under this head, however, it will also be convenient to allude to certain lesions affecting the main air-passage or its primary bronchial divisions, which are liable to be met with in connection with some lung diseases. The subdivisions given in the Table indicate, I think, fairly clearly the aspects under which the large majority of chronic pulmonary cases come before us in practice, and I propose to say a few words about each.

(a) *Phthisical*.—I often wonder what is the actual conception entertained of an ordinary case of chronic phthisis, by many persons who talk so glibly about microbes, tubercular granulations, and the like, and who are ever on the look-out for, and eager to adopt the latest “cure” for this disease, however absurd the suggested remedy or method may be. Among the laity there is unquestionably at the present time a widely spread vague sort

of idea that consumption is all a matter of bacilli; that these disturbers of our peace are merely roaming about and having a generally good time in our lungs; that all we, as a profession, have to do is to "go for" them in some way or other; and that if we succeed in dislodging, destroying, or otherwise circumventing these organisms, as we ought to if we lay any claim to "scientific progress," this disease, which has been in the past such a terrible scourge, will lose all its terrors! They do not seem to realise in the least that there are any actual lesions, pulmonary or other, and even when the chest and its contents have become a total wreck, their eyes are not opened to the absurdity of their notions, and they will fly to any quack who promises a cure! Of course, I do not for a moment suggest that these ideas are held by any medical man of average education, but I must say that what one reads and hears indicates rather an undue fondness for bacilli, and often reveals a want of a practical and intelligent appreciation of the actual morbid changes which ordinarily characterise phthisical cases, especially as regards their extent and combinations. It is not my business on the present occasion to discuss the pathology of phthisis, or to describe its lesions; nor do I wish to minimise in the smallest degree the importance of the bacillary doctrine in relation to this complaint. My subject, however, compels me to point out that the changes in the lungs themselves, setting aside other thoracic structures, are definite enough and well-understood, are often of a pronounced nature, and in cases of some duration are sure to be more or less combined, ultimately not uncommonly culminating in a highly complicated state of things. As the evidences and results of the phthisical process in these organs we have to deal with distinct areas or masses of consolidation—tubercular, inflammatory, caseous, or mixed; miliary tubercles, diffused or in groups; softening of these structures and breaking down, leading to destruction of the pulmonary tissues; cavities in all varieties of size, shape, characters of walls and surroundings, and contents, more or less suppuration usually taking place in them; as well as with changes indicating a tendency to arrest of the disease in places, and to a reparative process, especially the formation of a fibroid tissue, which leads to induration and contraction of the affected portion of lung, with narrowing, and it may be, even ultimate closure of some cavities. Then we have to recognise also in many cases an associated bronchitis, which con-

tributes more or less to the expectoration ; while in some instances there are definite tubercular ulcers in the larger bronchi or the trachea. The more pronounced laryngeal complications of phthisis hardly come within the scope of my subject, as the larynx is outside the thoracic cavity, but I may point out that laryngeal symptoms are occasionally produced by the effects of phthisical changes upon intra-thoracic nerves, and these must also not be overlooked. Again, in parts of the lungs not actually phthisical, compensatory distension or so-called emphysema is often met with ; and there are also vascular changes, but the only one I need specially mention is the possible development of an aneurism on a branch of the pulmonary artery within a cavity. In that special group of cases known as “mechanical phthisis” there is the additional element of different solid foreign particles infiltrating the lung-tissues.

The brief sketch I have just given of the pulmonary lesions in cases of chronic phthisis is merely intended to illustrate the fact that they have a positive existence, and to point out how they may be mixed up in a variety of ways in different cases. Anyone who has much experience of this disease knows but too well what a complicated set of conditions even one lung commonly presents, and as both organs are often implicated, the complication becomes still more intricate. There is one point I should like to notice here, namely, that it is very important to recognise the pathological nature of the different solid materials met with in phthisical lungs, and that it is highly misleading to sum them all up under the general term “consolidation.”

(b) *Emphysematous and Bronchitic*.—This is a familiar class of cases, which are usually dealt with in a very summary manner, and are seldom thought worthy of much attention. Nevertheless, they do deserve some consideration in relation to my subject, though I can only glance at a few prominent points. I must remark at the outset that the term “emphysema” is not uncommonly used in a very loose fashion, to signify any abnormal pulmonary distension or accumulation of air in the lungs, whether general, unilateral, or local. I am now concerned, however, with the real disease, as it comes before us in everyday practice, in which not only are both these organs more or less enlarged and distended, but their tissues have also undergone certain structural changes, chiefly evidenced by impairment or loss of elasticity and

expiratory force. Now this condition is most likely to be associated with a chronic bronchial catarrh or bronchitis of some kind, though there are times when the patient may be practically free from any such trouble, while it is liable to periodical exacerbations from the action of well-known causes. In many instances, of course, it is the bronchitis which has been the primary disease, and it may be affirmed as a general statement that this complaint cannot persist for any length of time without producing more or less emphysema, even in early life. I call special attention to this fact because I have so often been distressed by the pitiful sight of young subjects suffering in this way, evidently mainly as the consequence of ignorance and neglect. In whatsoever manner they may have started, a large number of the cases which we designate as those of "emphysema and bronchitis" are straightforward enough and comparatively simple, merely presenting the combination which the expression implies. Even thus far, however, they are worthy of more attention than they habitually receive, for we ought to try, at any rate, to determine certain details about them, as, for example, the degree of distension of the lungs; the amount and nature of the changes in their tissues, and how far their elasticity is impaired; the kind of bronchitis, with its amount and mode of distribution; and the state of the chest-walls. It would be very interesting to discuss the effects of pronounced emphysema upon the chest-walls and diaphragm, as well as its association with chest-deformities, but time forbids me to do so, and I can only say that these also demand due consideration, as they are often essential parts of the case. I have already referred to the importance of rigidity of the thorax in relation to the emphysematous condition.

One point deserving of notice in relation to emphysematous and bronchitic cases is that, from time to time, owing to the escape of air from the lungs being obstructed by the conditions of the bronchi, these organs become more distended than usual, and under such circumstances the emphysema appears to be really greater than it actually is, and when the obstruction is removed they diminish in bulk, it may be considerably, as evidenced by the size of the chest, while its movements also improve in proportion.

With regard to the changes affecting the bronchi in the cases now under consideration, we have to bear in mind not only

different varieties of bronchitis, but also that the walls of these tubes are in time likely to undergo serious permanent changes, their mucous lining likewise becoming disorganised, and finally more or less extensive bronchial dilatation being not uncommonly established. Bronchiectasis should more especially be remembered as a possible condition, because extensive emphysema will often completely obscure the physical signs which may be expected to reveal the presence of the dilated tubes. I may mention here that plastic bronchitis is a rare variety met with, associated with a more or less emphysematous state of the lungs.

(c) *Chronic Pneumonic*.—I can only very briefly refer to the conditions which come under this heading. There are the well-known cases of chronic interstitial pneumonia, which are described under the terms “cirrhotic or fibroid lung,” “fibroid phthisis,” &c. These become in time decidedly of a complex nature, in whatever way they may have originated. The fibroid change is limited in most cases mainly or entirely to one lung or a portion of it, which is thus hardened and contracted, being rendered quite useless; it is also often accompanied with the remains of phthisical cavities, and still more frequently with dilated bronchi; while unaffected areas of the same lung, as well as the opposite one, become the seat of compensatory distension, which may ultimately terminate in true emphysema. Sometimes both lungs are involved in unequal degrees; or if one is not fibrotic, it is frequently the seat of bronchitis.

There is an exceptional class of chronic pneumonic cases which I must just mention, as they may prove very puzzling. In these one lung is either throughout, or over a large extent, absolutely solid, but instead of being contracted, it is more or less enlarged. The opposite lung becomes greatly distended, and also in some instances the seat of dry bronchial catarrh, so that the general aspect of the patient, as well as the prominent symptoms, may resemble closely at first sight those of an extreme case of emphysema and bronchitis, with an asthmatic tendency.

(d) *Syphilitic*.—Time forbids my doing more than allude to these cases, which are somewhat indefinite from a clinical point of view, though they occasionally present obvious combinations of different morbid conditions, which it may be possible to recognise during life.

(e) *Mixed*.—I have already given illustrations of mixed con-

ditions in the lungs, but I have thought it desirable to designate by this term a particular class of cases, in order to emphasise the fact that any of the pulmonary lesions which I have been thus far considering may be met with together in almost every conceivable variety of combination. There are two points to which I more especially wish to draw your attention in this connection. I have heard it often stated, and it seems to be rather a prevalent idea, that emphysema and tuberculosis are antagonistic, and are rarely observed together. Now, as a matter of fact, phthisical changes are not at all uncommon even in markedly emphysematous lungs; while it is quite usual to find the two conditions associated together in different parts of the same organ. Under these circumstances the physical signs of the tubercular lesions are very likely to be obscured, and we may have to rely very much on the symptoms in their diagnosis. The other point to which I must refer is the relation between phthisis and chronic bronchitis. There is a distinct class of cases in which, chronic bronchitis having existed in a more or less pronounced form for a variable period, tubercular changes ultimately supervene, which are easily explained on the bacillary theory, and the clinical phenomena reveal definitely enough a combination of the two diseases. The danger is lest the development of the tubercular lesion under such circumstances is not recognised, and my observations have led me to the conclusion that not a few cases regarded as bronchitic, and so recorded in death-certificates, are in reality phthisical, a most important matter, in my opinion, in relation to life insurance, to the question of the heredity of consumption, and to the danger of the transmission of tuberculosis by the sputum or by direct infection. This oversight is especially liable to happen in the case of patients advanced in years, a statement in support of which I could mention many examples from personal knowledge.

3. *Pleuritic and Pulmonary*.—If I were to attempt to discuss in detail the different kinds of cases in which pulmonary and pleuritic conditions exist together, the subject would take up at least the whole of the time allotted for one of these lectures. I must, however, on the present occasion content myself with merely stating emphatically the fact that these combinations do frequently present themselves under different aspects in practice, and giving a few prominent illustrations in support of my assertion.

First, we have to deal with fairly simple cases, in which, as the result of a definite attack of pleurisy with effusion, or perhaps an empyema, the immediate effects produced by these conditions on the lungs remain persistent, but there is no further active mischief in these organs. That is to say, the lung on the affected side continues in a more or less condensed or collapsed state, being bound down by pleural adhesions, probably becoming also in course of time somewhat fibroid; while the opposite one presents various degrees of distension or compensatory hypertrophy. This combination may remain quiescent for an indefinite period. Sometimes an effusion into the pleura does not clear up; or there may even be the association of chronic changes previously referred to.

Secondly, it must be constantly borne in mind that pleural adhesions, varying in extent and situation, but often well-marked, and frequently accompanied with more or less thickening, are most important factors in a large number of cases belonging to the pulmonary groups considered under the previous heading. I lay special stress on this point, because my experience has convinced me that by many these pleuritic conditions are never even thought of under such circumstances; while they are frequently overlooked when evidently producing very troublesome or serious effects. In chronic phthisis, for instance, it is quite common to find one lung universally adherent, the change often extending much beyond the limit of the actual pulmonary disease; while the opposite organ may be also partially fixed in a similar way. Of course, in some of these cases the phthisis is secondary to the pleuritic condition, but the lesions as they come before us are practically the same. It is at the present time a favourite doctrine that most cases of pleurisy are originally tubercular, but without discussing this doctrine, I must be permitted to say that I do not agree with it as a general statement, although I fully recognise the great importance of pleuritic conditions in relation to phthisis, and also that they are often truly tuberculous. Next, with regard to emphysema and bronchitis. Local adhesions are very frequent in association with these affections. There is also a very definite class of cases of this kind, in which a more or less extensive and usually very firm adhesion binds down the upper part of one lung, this being sometimes associated with a chronic mediastinitis. A somewhat complicated class of cases occasionally present themselves, which without due care are very liable to be

regarded as merely "emphysematous and bronchitic." Their history is that the patient has had a definite attack of pleurisy, which has left one lung universally adherent, and probably compressed, while the opposite lung has undergone compensatory hypertrophy. In course of time, however, the enlarged organ becomes highly emphysematous, and ultimately greatly distended; while the compressed lung may also expand under certain circumstances, and subsequently become emphysematous. Dry bronchial catarrh or chronic bronchitis is frequently added to these conditions, and should phthisis supervene as well, as may actually happen, the case comes to present a highly complicated aspect. I have had the opportunity of watching some cases of this kind in their progress and development, and I must say that occasionally they ultimately become decidedly puzzling. In connection with the fibroid lung the pleura is usually very much thickened, and the adhesions very dense, while the lobes of the organ are also firmly matted together. Some of these cases have undoubtedly originated in pleuritic changes, but into any discussion of their pathology I cannot now enter.

Thirdly, there are definite cases of a chronic phthisical nature in which pulmonary and pleuritic lesions exist together in a pronounced form, including perhaps the remains of a pneumothorax, and the combination may be very perplexing. Occasionally one meets with phthisis at one apex, and an effusion on the opposite side, which returns again and again after removal by paracentesis, being evidently of tubercular origin. Exceptional instances occur in which the combination of conditions affecting the lungs and pleuræ is extremely complex. Extensive thick adhesions, and tubercular infiltration, with perhaps the remains of effusion or a pneumothorax; marked emphysema in parts; phthisical lesions of all kinds, with fibroid changes and dilated bronchi; and bronchitis — all are jumbled up together in inextricable confusion.

Lastly, an important class of case where the pleura and lung are involved together are those in which an empyema has burst into the lung, and the discharge of pus in this direction has persisted as a chronic state, the matter being usually coughed up at intervals. In short, we have then to deal with a pyo-pneumothorax, which is periodically emptied partially or entirely by way of the air-passages. The state of the lungs under these circum-

stances varies much in different cases, and may be very difficult to determine with any approach to accuracy.

B.—*Pericardial, Cardiac, and Vascular.*

I have thought it desirable to prepare a separate Table, to which I now invite your attention, indicating the various chronic morbid conditions which may affect the pericardium, heart, and great vessels. I have done so because in dealing with these structures from a clinical point of view it is particularly helpful to have a systematic and comprehensive knowledge of the changes to which they are liable; and also because I have a very strong impression that certain of them are not unfrequently altogether forgotten in dealing with individual cases.

TABLE IV.

Chronic Pericardial, Cardiac, and Vascular Conditions.

I.—Pericardial adhesion or agglutination—Calcification—Chronic Effusion—Pyo-pericardium (rare).

II.—Cardiac—

1. Affections of Orifices, Valves or their Appendages, and Endocardium.
2. Enlargements of Heart—

| | | |
|-----------------|---|------------------------------------------------------------|
| (a) Hypertrophy | } | Varying in degree, distribution, and relative combination. |
| (b) Dilatation | | |
3. Atrophy—Diminution in size.
4. Fatty Infiltration.
5. Myocardial changes — Fatty Degeneration — Connective-tissue Hypertrophy—Fibroid Myocarditis—Brown Atrophy, and other peculiar degenerations.
6. Rare conditions—Cardiac Aneurism—Growths—Hydatids.
7. Congenital Malformations—Traumatic rupture of septa.

III.—Vascular—

1. Atheroma or calcification of aorta and large branches—Chronic Aortitis—Dilatation.
2. Aneurism of various kinds.
3. Degeneration and narrowing of coronary arteries.
4. Dilated large veins—Incompetency of valves.
5. Changes in pulmonary artery.

Of course it is quite out of the question for me to attempt in these lectures to give any classification of the several ways in which the morbid conditions mentioned in the Table may be associated together, and, without further comment, I can only submit the following general propositions:—

1. That cases of cardiac disease are, in relation to the structures immediately concerned, in a large proportion of cases by no means so simple as they are often thought to be, and that most of them must inevitably at some period or other of their history present different changes in various combinations. They cannot and ought not to be summarily dismissed as presenting this or that "murmur," even when a grand name is attached to it; or under the comprehensive and sometimes meaningless expression "enlarged heart."

2. That pericardial adhesion or agglutination is a most important element in not a few chronic heart-cases, and should therefore always be borne in remembrance, especially as it can frequently be easily recognised.

3. That in every individual case it is essential to think of *all* the conditions associated with the heart itself referred to in the Table, and to study them intelligently, being guided by an adequate general knowledge of the probable combinations which may be anticipated under particular circumstances. I may allude here to the fact that it is quite common to find two or more orifices and their valves affected in the same case, and the well-known consequences of these lesions will be modified accordingly. Congenital malformations and other peculiar classes of cases must, of course, be regarded from their own special aspects.

4. That functional disorder of the action of the heart does often modify from time to time, or even persistently, in a remarkable way and degree, the phenomena associated with organic cardiac affections, both symptoms and physical signs, and it should, therefore, be made a rule always to study systematically the mode in which the heart is performing its functions, in relation to the organic changes that happen to be present. In short, we have frequently to deal with a combination of organic disease and functional derangement of this organ, which it is most important to recognise and understand.

5. That it is also of the highest importance always to attend to the great vessels within the chest and those of the neck, as these are commonly affected in various ways along with the heart, or may reveal conditions of this organ which cannot otherwise be definitely determined. The frequency of extensive atheroma or calcification of the aorta and its large branches in cases of cardiac disease ought never to be forgotten, or there may even be distinct

dilatation as well, or even an aneurism. In this connection attention may also be specially drawn to similar changes affecting the coronary arteries, although it may be very difficult positively to determine their presence. Certain conditions of the veins, which are really morbid, are likewise of great significance and consequence, especially in relation to abnormal states of the right heart.

C.—Respiratory and Circulatory.

The next group of chronic chest-cases of a combined nature which claim our consideration are those in which the respiratory and circulatory apparatus are involved more or less at the same time. Here, again, I can only glance at a few leading points.

The mutual pathological relations of the respiratory organs and heart are, on the whole, well-understood and recognised, and we often meet with combinations resulting therefrom, as exemplified by the effects of mitral disease on the lungs, on the one hand; and on the other, of those of prolonged emphysema and bronchitis, or of certain other conditions obstructing the pulmonary circulation, upon the right heart. One effect which pulmonary changes may produce in relation to the heart and pericardium worth remembering is that when the lungs are highly emphysematous these structures become more or less completely covered, while at the same time the right side of the heart seems to be pushed down towards the epigastrium. On the other hand, as the result of contractile changes, in connection with chronic phthisis or pleurisy, the pericardium and its enclosed structures become unduly exposed, or the large vessels may be also uncovered. Again, the mutual physical results of certain conditions must be borne in mind. These are most obvious in the case of the heart, which is very liable to be embarrassed in its action, or to be pushed or dragged in different directions by various changes affecting the lung or pleura. The fact is not so well recognised that a very large heart compresses the left lung more or less, and I have known it to be completely collapsed and airless from this cause.

Another class of cases in which the respiratory and circulatory apparatus present combinations of chronic morbid conditions are those where the changes are the effects of the same cause or causes, which have operated upon both sets of structures. As I shall show in the next lecture, they may be involved in an acute inflammatory process at the same time, and the remains are likely

to come before us under a more or less complex aspect. An important illustration worthy of notice in this connection is that certain of the causes which have been previously considered as producing over-distension of the lungs and rigidity of the chest-walls, act at the same time upon the great arteries, or even upon the aortic valves, and that in this way a very serious combination of conditions may be originated, for which under the circumstances we should always be prepared.

Lastly, certain chronic changes, commencing either in the respiratory or circulatory structures within the thorax, may gradually spread to those adjacent, so that both sets become involved, and ultimately the conditions may be highly complicated. This observation applies chiefly to tubercular cases.

D.—*Special Diseases.*

I have simply enumerated certain classes of chest-cases under this heading, which are obviously distinct and peculiar, and each of which, not only from a general aspect, but also in individual instances, demands independent and special study and consideration. The conditions to which they severally give rise are likely to be presented in various combinations, and not uncommonly they are extremely complicated. I do not propose to deal with the individual members of this group, and can only offer two or three general remarks about aneurism and glandular enlargements or other kinds of intra-thoracic tumour, malignant and non-malignant. It is necessary to be constantly on the look-out for these kinds of cases, and especially aneurism, for although they are of comparatively infrequent occurrence, we never know when they may come under our notice. I say this advisedly and emphatically, because I have met with some striking instances in which an aneurism has been entirely overlooked, when the conditions present, which had been produced by the aneurism, clearly pointed to this disease as the primary source of the chest trouble. Enlarged bronchial or other glands within the chest is another condition to be remembered, especially in children. In relation to a thoracic aneurism or solid tumour we have not only to think of these conditions in themselves, but also of their effects upon adjoining structures. These must be well-known to every properly-trained practitioner, and as a rule it ought not to be difficult to understand the phenomena resulting therefrom in individual cases.

The changes may be of a pronounced and definite physical nature within the chest, such as collapse or compression of a lung; consolidation or destruction of a portion of one or both lungs; chronic pleurisy and its results; hydrothorax; cardiac displacement, &c.; but it is in these classes of cases more particularly that we have to bear in mind the several minor structures in the mediastinum, interference with which is indicated merely by certain thoracic symptoms, by special superficial phenomena, by remote symptoms, or by signs which are only revealed by particular methods of examination. I must draw special attention to the fact that an aneurism of the aorta may come before us under the guise of what appears to be a mere case of "emphysema and bronchitis," the result of pressure on the trachea, the aneurism itself being entirely obscured by the distended lungs, and out of reach.

E.—*Independent Diseases.*

Under this head I only wish to say that there are cases of chest disease in which morbid conditions are associated together, having no direct connection with each other, and being in reality quite independent. For instance I have met with not a few cases of phthisis and cardiac disease which would come under this category, as well as exceptional instances of aneurism and phthisis. Another illustration is the association of a right pleurisy with cardiac disease; and if time permitted I could give from my own experience numerous other examples.

F.—*Highly Complicated Conditions.*

I have already given examples of combined chest-conditions of a complicated nature, and I merely remark further that exceptionally they present such a degree of complexity that it becomes practically impossible to unravel them, apparently every structure connected with the thorax, both internally and externally, being more or less implicated in the morbid changes, and ultimately becoming either agglutinated and matted together into one mass, or involved in a common ruin. Some highly complicated cases, however, can be fairly understood, even when several structures are affected.

General Conclusions.

I am afraid that I have much wearied you with my attempt to discuss, in something like systematic fashion, the aspects under which cases of combined chronic morbid conditions of the chest present themselves in actual practice. Permit me, however, before bringing this lecture to a close, to submit the following general conclusions to which the discussion has, I think, fairly led, namely :—

(1) That chronic diseases, even of individual structures or organs, to which we apply particular names, are in reality usually made up of different morbid conditions, in various combinations.

(2) That two or more directly related structures are frequently implicated, and present well-recognised associated lesions, in cases which are thus designated.

(3) That definite and well-understood pathological relations exist between the important organs occupying the thoracic cavity, which explain many of the combinations of morbid conditions met with in medical practice; but also that these and the other structures associated with them may be implicated together, apart from the effects of any such obvious connection.

(4) That certain classes of cases must be dealt with specially and individually, as regards the morbid combinations which they are likely to produce.

(5) That we must be prepared for cases in which separate and independent diseases exist together within the chest, as well as for those in which the changes are of a highly complicated nature, and which may tax our knowledge and skill to the utmost in our attempts to unravel them.

(6) That in all cases of chronic thoracic disease due attention and consideration must be given to the chest-walls; and that in not a few instances at any rate the diaphragm ought not to be forgotten or overlooked.

LECTURE II.

VI.—COMBINATIONS IN ACUTE CASES.

MR. PRESIDENT AND GENTLEMEN,—I now invite you to a discussion of certain aspects under which acute chest-cases come before us in practice, presenting combinations of conditions which we are bound to recognise, if we desire to understand these cases properly, and to treat them intelligently and rationally. I do not know whether my experience accords with that of others here present, but I meet nowadays with so many acute chest-affections of a more or less complicated nature, that it is really quite a comfort to come across a case that is fairly straightforward and simple.

I may remind you at the outset that the acute morbid conditions associated with the contents of the thorax are of different kinds, and not merely inflammatory, and it is most desirable to have a definite knowledge of their nature when dealing with individual cases. I will not, however, trouble you with any discussion of these conditions, but proceed at once to consider the chief aspects under which combinations of morbid changes present themselves in acute chest-cases, as indicated in Table V.

TABLE V.

Combinations in Acute Chest-Cases.

- A.—Acute conditions supervening on chronic.
- B.—Associated conditions in air-tubes and lungs.
- C.—Secondary effects of an acute disease.
- D.—Combinations of acute inflammatory diseases—
 - 1. Tracheo-bronchitis—Varieties of bronchitis.
 - 2. Pleuro-pneumonia.
 - 3. Broncho-pneumonia.
 - 4. Bronchitis with lobar pneumonia.
 - 5. Diphtheritic extension.
 - 6. Pericardial and cardiac.
 - 7. Complicated cases.
- E.—Tuberculo-inflammatory combinations.
- F.—Miscellaneous combinations.

It will be convenient to discuss separately each of the groups given in the Table.

A.—Acute Conditions Supervening on Chronic.

It is a very common event for some acute chest-affection to supervene upon chronic morbid conditions of various kinds, and this is a most important point in relation to my subject. This fact becomes important from two points of view. The natural tendency is to look upon an acute complaint as the sole mischief, especially if nothing is known about the previous history of the patient, and therefore it is always necessary to guard against this tendency, and to be constantly on the look-out for any preceding chronic changes which happen to be present. On the other hand, when such changes are known to exist, and especially if they are pronounced, the development of any acute complication demands immediate recognition, as well as intelligent study in relation to the circumstances under which it occurs. Unless one is thus on the alert, the combination is liable to be either overlooked altogether, or misinterpreted, for the phenomena to which it gives rise are often anything but characteristic. Having offered these general remarks, I now proceed to give a few illustrations of the more prominent combinations which have to be recognised under this category, so far as they have come within my own personal experience.

1. I must just refer once more in this connection to the importance of always recognising the presence of certain conditions of the chest-walls, and other minor changes discussed in the former lecture, when an acute affection develops in this region. That under such circumstances, especially if they are pronounced, they add more or less, and often seriously, to the troubles and dangers associated with such an affection, is indisputable, and they may contribute in no small degree to a fatal result. I need scarcely say that the occurrence of an acute inflammatory disease as a complication in a case of marked chest-deformity is often most grave.

2. The importance of pleuritic adhesions in relation to acute diseases of the chest is so manifest, that I make no apology for discussing this point in some little detail. In the first place, it is interesting to note that when a local adhesion exists, the origin of which is quite unknown, the corresponding limitation or undue prominence of signs of a bronchial catarrh may reveal its presence and site, and I have known this happen again and again in the

same case. I have a strong impression that an apical adhesion may in this way prove a real source of danger, by predisposing to repeated irritation of the upper part of the lung, and thus laying the foundation for tubercular infection.

A far more important condition to be noted in its association with acute affections of the chest is the existence of a unilateral basic adhesion, extending more or less upwards, the signs of which may or may not have been previously evident. There is generally a history of some acute illness, be it only known by the expression "congestion of the lungs," and of course the practitioner may be aware of all the facts of the case. This condition always acts as a predisposing cause for the special implication of the lower part of the corresponding lung, which is embarrassed by the adhesion, and even when the patient has merely a slight cold, but still more if he has a definite bronchitic attack, the signs usually become so marked and out of proportion over the corresponding base, that anyone who is not aware of the combination is very likely to attach far greater importance to them than they deserve, and to diagnose a serious congestion of the lung (which in a certain sense may be correct), or an actual pneumonia which does not exist. Therefore, whenever moist râles, in more or less acute cases, are heard only or in marked excess over one base, other signs of pneumonia being absent, the possibility or even probability of an adherent pleura being the explanation should always be borne in mind.

There is one class of case to which I particularly wish to refer in connection with basic pleuritic adhesion. The tendency of this condition is not only to embarrass the lung, and probably to damage its structures to some degree, but also to retain secretions or any morbid products which may be formed in the bronchial tubes or air-vesicles. I frequently meet with cases in which râles due to such accumulation are constantly present at one base, varying in their amount from time to time. Indeed, sometimes in association with a general agglutination they are heard extensively over one side, and I have ventured to give to these adventitious sounds the term "adhesion-râles." Now it occasionally happens in course of time, that without any obvious increase in the physical signs, indicating either pneumonic consolidation, pulmonary destruction, or suppuration, more or less acute general symptoms set in, much like those of phthisis, which increase in

severity, until sooner or later the patient succumbs. Local symptoms may develop or increase, but not in proportion, and there is often only a small amount of muco-purulent expectoration. Sometimes signs indicating secondary progressive implication of the lung-tissues in an upward direction supervene, but they do not point to anything like a cavity. No doubt many of these cases become actually tubercular, and they would be classed as "basic phthisis," but certainly not all. At any rate, I have met with some in which experienced bacteriologists have failed to detect any tubercle-bacilli in the sputum, after repeated examinations. I have a strong opinion, however, that the grave results in all these cases are really due to micro-organisms, probably of different kinds, which gain access with the inspired air into the base of the lung, where they find a suitable nidus in the retained secretions and morbid products, in which they flourish and multiply, producing toxins which are absorbed, and by degrees poison the patient. Whatever may be the explanation, the practical lesson is that a basic adhesion, accompanied with the persistent presence of râles, is a condition never to be overlooked or under-rated, and one that decidedly predisposes to acute changes of a grave nature. There is still another point worthy of notice relating to a pleural adhesion involving the lower part of one side, namely, that should another definite attack of acute pleurisy with effusion, or of pneumonia supervene, then the state of things within the chest, as well as the progress of events, may be very curious indeed. It sometimes becomes, under the circumstances, decidedly difficult to interpret accurately the meaning of the physical signs, which are quite unintelligible apart from the recognition of the previous pleuritic condition, and the difficulty is all the greater if, as I have known happen, a pericardial effusion is added to the troubles.

I now wish to say a few words with regard to acute conditions occurring in cases where one lung is universally adherent. Should a well-marked attack of bronchitis develop under such circumstances, the signs on the two sides are likely to be quite different, and the embarrassed lung will probably suffer much more seriously than the opposite one. In these cases also definite pleurisy with effusion, or a pneumonia may develop on the healthy side, and this is obviously a very awkward and dangerous combination, though not necessarily fatal.

The relation of a generally adherent lung to acute tubercular changes is extremely interesting and important. Unquestionably an acute phthisis with rapid destructive changes may develop in connection with a lung which has been known to be generally adherent for a long period, but which until that time has given no apparent trouble: or it may start on the healthy side. In some of these cases, however, careful inquiry will show that there have been slight symptoms, of longer or shorter duration, indicating that the lung has been affected, and upon this condition the acute changes supervene, which may run a very rapid course. Another tubercular process which may possibly complicate the general chronic pleuritic adhesion is what may be described as an outburst of miliary tuberculosis in the corresponding lung, while the opposite one is practically free. I have known such an event occur, accompanied with very peculiar symptoms and indefinite physical signs, matters being only satisfactorily cleared up at the *post-mortem* examination.

Before leaving the pleura, I may mention that sometimes an acute intra-thoracic inflammation complicates the pronounced combined conditions associated with this structure alluded to in the previous lecture. The possibility of such a complication in a case of empyema which has communicated with the lung must also be noted, of which I have met with more than one striking instance.

With regard to the more definite chronic diseases of the chest, it must always be borne in mind that different acute affections may arise as complications in cases of phthisis, emphysema, fibroid lung, cardiac disease, aneurism, &c. In connection with phthisis we not uncommonly have to deal with temporary attacks of acute bronchitis, likely to be purulent; a definite pneumonia, which sometimes surrounds and is limited to the vicinity of an old cavity, exceptionally ending in gangrene; disseminated broncho-pneumonia; repeated attacks of dry pleurisy, which are probably indications of active progress of the tubercular disease, and of its extension to the pleura, or even a well-marked acute pleural effusion, either on the same side as the pulmonary lesion, or on the opposite side when it happens to be unilateral. Here also must be mentioned a very serious class of cases, in which an acute and rapidly progressive and destructive phthisis, or an acute miliary tuberculosis, unexpectedly breaks out in a perfectly quiescent

chronic case, or in one even where the lesions are very limited, and appear to have been practically cured. I must confess that I have seen this happen under circumstances which strongly suggested fresh infection from without.

Pronounced emphysema is well-known as a predisposing condition for an acute attack of bronchitis, often of the "dry catarrhal" type, but which differs much in its characters, and sometimes tends to be of the "capillary" variety. The association of a purulent bronchitis, with profuse expectoration, marked general symptoms, and high fever, in a case of emphysema, may simulate in a remarkable degree acute phthisis, and I have known a fatal prognosis given on these data in a case which ultimately completely recovered. Let it be clearly understood, however, that an acute tubercular phthisis may possibly develop even in connection with extremely emphysematous lungs. The association of a definite acute lobar pneumonia with pronounced emphysema is, in my experience, rare, but I have known double pneumonia occur under these circumstances, there being also a deformed thorax, and yet recovery take place.

The supervention of an acute complication upon a chronic cardiac affection is always a serious matter, and demands the most careful attention. Of course any acute inflammatory disease associated with the respiratory organs may set in, and its dangers are likely to be much increased under the circumstances. Certain forms and combinations of cardiac diseases are liable to produce at any time acute pulmonary congestion with œdema, or sometimes embolism and infarction : or hydrothorax may occur. The development of an acute endocarditis, probably malignant, on an old valvular disease is of supreme consequence, and this possibility should never be forgotten. When this condition happens to be added to an already complicated heart-case, with an adherent pericardium, possibly accompanied with extensive aortic degeneration, the entire combination is from all points of view extremely grave.

Time forbids me to refer further to the special association of acute diseases of the chest with particular chronic conditions, and it must suffice to state that they may possibly complicate any case. If it should happen that various changes have previously existed together, the sum total of the conditions is likely to be most difficult to estimate and treat.

B.—Associated Conditions in Air-tubes and Lungs.

It is important to draw attention to the fact, that in a considerable proportion of cases in which the lungs are acutely affected, we have to deal with a more or less complicated state of things, as regards the actual conditions in these organs and in the air-tubes. For instance, a mere attack of bronchitis, by obstructing the tubes in different degrees, leads on the one hand to temporary accumulation of air, and consequent pulmonary distension; or, on the other hand, to pulmonary collapse, of lobular or more extensive distribution. The expression "congestion of the lungs" is commonly employed in relation to acute chest-cases in the most vague way possible, and is in not a few instances absolutely wrong and misleading; nevertheless I wish to point out particularly that this is a real condition, which frequently forms an important element in a case, either directly, or by its effects. Thus, in connection with croupous pneumonia, especially if of rapid onset and extensive distribution, or if both lungs are involved, the disturbance of the pulmonary circulation is sure to lead to congestion of more or less of those portions of the organs which are not consolidated, and it may be of practical consequence to recognise the combination. The conditions termed "broncho-pneumonia" and "capillary bronchitis" are also in reality of a mixed character, in which pulmonary congestion takes a prominent part. It is likewise associated with acute miliary tuberculosis, giving rise to certain of the signs observed in this disease. The acute conditions in the lungs which are liable to supervene in cases of mitral disease are usually of a more or less complex nature. My object in making these few remarks is to point out that even acute pulmonary diseases are not so simple as they are often thought to be, and that in dealing with individual cases we have to remember the possibility of various conditions being mixed up together in the lungs, such as congestion and œdema, hæmorrhagic infarcts, acute emphysema or collapse, bronchitic conditions, and pneumonic consolidation. There is one condition to which I must just refer, namely, pulmonary paralysis. I cannot say anything definitely about it on the present occasion, but I have no doubt that it is a state of lung which has a real existence, and that it is an important factor in aiding towards a fatal termination in certain cases.

C.—Secondary Effects of an Acute Disease.

Important combinations of morbid conditions come under this head, but it must suffice to give two or three of the more prominent illustrations. Cases of acute inflammatory effusion in the pleura or pericardium, or both, afford some of the most striking examples we have of the secondary effects of physical conditions within the chest, referred to in the previous lecture, and the combinations resulting therefrom are often very grave, not only in themselves, but also owing to the rapidity with which they are produced. Dropsy of these serous cavities developing acutely would give rise to similar consequences. Again, acute pulmonary affections not uncommonly act seriously upon the heart in different ways. Thus, an attack of severe bronchitis occurring in a case of pronounced chronic emphysema tends, as is well-known, to greatly embarrass the right heart, causing accumulation of blood in its cavities, actual temporary dilatation, or possibly cardiac thrombosis. Similar consequences are observed in cases of rapid and extensive broncho-pneumonia or capillary bronchitis, even when the lungs have been previously perfectly healthy, and the cardiac complications add seriously to the danger of such cases. In a severe case of croupous pneumonia, not only may similar difficulties arise, but the myocardium is also liable to undergo serious acute degenerative changes. I may add that in all these conditions the heart is often, apart from these changes, the seat of grave functional disturbance. On the other hand, secondary lesions in the lungs are likely to follow certain acute conditions associated with the right heart, namely, clotting of blood in its cavities and endocarditis, especially if of the malignant variety. Pulmonary embolism, infarctions, and their consequences may thus be produced, the emboli in the last class of cases being of a septic character. I may also refer under this heading to the fact that cardiac thrombosis may arise as a consequence of acute endocarditis, or even of serious disorder of the action of the heart.

D.—Combinations of Acute Inflammatory Diseases.

I now approach a question of great interest and practical moment in relation to acute diseases of the chest, and that is the various ways in which the several inflammatory diseases may be

combined in particular cases. I am convinced that the frequency with which such combinations occur in actual practice is by no means realised as it ought to be. I have given in Table V a general classification from this point of view of cases as I have personally met with them, which may be of some use for practical purposes. It is impossible to do more in this lecture than to offer a few general remarks on this part of my subject.

1. *Tracheo-Bronchitis : Varieties of Bronchitis*.—I merely mention tracheo-bronchitis in order to point out that inflammation of the trachea is in many instances a very prominent element in acute bronchitic cases, at any rate at their commencement, and as a matter of fact is mainly accountable for the early symptoms. Of course, the larynx is also often affected, but by no means necessarily. It is further worthy of note that the term "bronchitis" really includes conditions of different kinds, which are frequently associated in the same case.

2. *Pleuro-pneumonia* is an expression in common use, to which no very clear or definite meaning is attached. A certain amount of pleuritic exudation may be regarded as an almost essential concomitant of a pneumonia reaching the surface of the lung. There is, however, quite another class of cases, though I believe some authorities dispute their reality, in which pleuritic effusion and pneumonic consolidation exist together, sometimes developing more or less simultaneously, but more frequently one condition following the other. Then there are the cases in which, on the one hand, an acute empyema opens into the lung, or, on the other hand, a pulmonary abscess resulting from pneumonia bursts into the pleural sac; moreover, in cases of pulmonary abscess pleurisy may certainly be set up without any actual communication with the cavity of the pleura.

3. *Broncho-pneumonia* may be regarded as a combination of acute inflammatory affections of the respiratory organs, but it needs no more than a passing mention. The association with this disease of non-inflammatory conditions involving the lungs has already been referred to.

4. *Bronchitis with Lobar Pneumonia*.—A certain degree of bronchitis is often associated with lobar pneumonia, but I draw attention to this class of cases more especially in order to emphasise the fact that a patient may have an extensive bronchitis, with abundant purulent or muco-purulent expectora-

tion, while the lower lobe of one lung is at the same time the seat of definite lobar pneumonia. Under the circumstances, the pneumonic consolidation is decidedly in danger of being overlooked, as I have known happen more than once.

5. *Diphtheritic extension*.—It will be convenient in this connection briefly to notice those cases in which diphtheritic membrane spreads down the air-passages into the bronchi, extending more or less into their ramifications in the lungs. This is of course a form of inflammation, while it gives rise to other inflammatory conditions, as well as to secondary pulmonary changes of different kinds, which ultimately frequently lead to a very complicated state of things.

6. *Pericardial and Cardiac Inflammations*.—A very important class of acute cases which come under the category we are now discussing, are those in which pericarditis is associated with endocarditis, or there may even be at the same time a myocarditis. They are by no means uncommon, more especially in connection with rheumatism in young subjects, and we see the results of the combination in many chronic cardiac cases which come before us in later life. The late Dr. Sturges, whose unexpected death under such sad and distressing circumstances we have so deeply to deplore, discussed this aspect of the subject in a very interesting and instructive manner in his "Lumleian Lectures" for 1894, and I cannot do better than refer you to these lectures for further details. Occasionally an aortitis accompanies endocarditis, but this is quite exceptional. An acute pericarditis may result from an abscess in the walls of the heart, especially if it should burst into the pericardium, but these cases are also very rare.

7. *Complicated Cases*.—Lastly, we now and then meet with cases of acute intra-thoracic inflammation which can only be described as "complicated." Exceptionally these cases present an extremely intricate and complex aspect, especially if there happen to have been previous chronic conditions. Thus there may be more or less pleuro-pneumonia on both sides, or double empyema; pericarditis may supervene on a pneumonia or pleuro-pneumonia; or there may even be a complication of pleurisy and pneumonia, perhaps double, with pericarditis, endocarditis, myocarditis, and a mediastinitis thrown in. The class of cases last mentioned may be associated with acute rheumatism, when, though very grave, they are not necessarily fatal; with influenza; or with some

obvious internal septic or pyæmic condition. Rarely, however, it is impossible to trace them to any definite or tangible cause, and then they can only be attributed to some special morbid agent, introduced from without, probably either with the inspired air or with food. The inflammatory lesions sometimes progress with remarkable rapidity, not only in individual organs, but from one structure to another. The products may become very abundant, and are usually of a low type. Occasionally these cases present remarkable changes within a very short period, fresh outbursts apparently taking place after the inflammatory process has begun to subside.

The direct causative relation of micro-organisms to all acute intra-thoracic inflammatory diseases is at the present time a favourite doctrine. Whatever one may think of this doctrine from a general point of view, it is impossible to ignore the influence of these organisms in many of the cases now under consideration, for there does not appear to be any other explanation of their history, while the extension of the inflammatory process by their agency can be easily understood. I need not, on the present occasion, discuss the nature of these microbes, but I may mention the well-known fact that pneumococci have been actually found in pleural and pericardial effusions associated with pneumonia.

E.—*Tuberculo-Inflammatory Conditions.*

There is a special class of cases which I think may be fairly differentiated under this category. They come before us in different aspects, it may be apparently as an ordinary lobar or more limited pneumonia, not necessarily apical; more commonly as a disseminated lobular or patchy pneumonia; or, in some instances, as a marked pleuritic or pleuro-pneumonic case. The foundation of all the lesions in these particular instances, however, is tubercle, as the course of events, as a rule, soon declares. Patients with these conditions may be actually walking about, and come to the hospital or consulting-room for advice, the early symptoms not having been sufficiently pronounced to attract much attention. I have known such cases present themselves for the first time with a temperature of 103° or more, and obviously seriously ill. Sometimes the lesions follow a more or less profuse unexpected hæmoptysis. There is no class of acute cases against

which we need to be more constantly on our guard, lest we should fail to detect them, or misinterpret their significance. They do not necessarily go steadily from bad to worse, for the inflammatory products not uncommonly to a great extent become absorbed, the patient improving in a corresponding degree. Definite phthisical changes, however, usually remain, and the ultimate issue is, sooner or later, as a rule but too inevitable. Exceptionally, however, under favourable conditions of home-treatment, climate, &c., cases of this kind undoubtedly practically recover; on the other hand, their history is far more likely to be that of a very acute and "galloping" phthisis.

F.—*Miscellaneous Conditions.*

I have made a special group of cases under this heading, for the purpose of indicating the fact that the vital organs contained within the chest are liable to be affected in an acute manner, and to present more or less serious combinations of conditions, under circumstances which do not fall under any of the preceding classes, but which, nevertheless, it is highly important that we should recognise. I refer, for example, to those which result from, or are associated with, poisonous inhalations, not forgetting fogs; toxic causes; the "typhoid state"; exposure to extreme cold; partial suffocation; and certain nervous diseases or injuries. Their effects are evidenced by more or less grave disorders of the respiratory and circulatory functions; and it will suffice to state that they may more immediately give rise to such conditions as pulmonary congestion and its consequences, especially hypostatic; coagulation of blood in the pulmonary vessels; embolism and infarction; pulmonary paralysis; cardiac dilatation or thrombosis; and failure of the respiratory muscles, especially the diaphragm. Inflammatory complications may, of course, subsequently supervene, adding to the difficulties and dangers of a particular case.

VII.—COMBINATIONS DUE TO ACCIDENTAL LESIONS OR COMPLICATIONS.

Under this head I propose to notice very briefly certain classes of cases in which, usually quite suddenly, or at any rate very acutely, some definite event or lesion occurs within the chest, which is associated with, and is the direct result of some pre-

viously existing morbid condition or conditions. As a rule, the complication is indicated by phenomena of a pronounced and often grave character. Frequently the primary and determining changes are known to be present in the particular case: and the event is perhaps anticipated and prepared for. Not uncommonly, however, this is not so, and the original disease may be quite latent, or if recognised, may be unknown to the practitioner who happens to be called in on the sudden emergency. We have, therefore, to be always ready to be confronted with curious and, it may be, very puzzling cases of this kind. Of course, lesions of this nature may cause immediate or very speedy death, and then only a *post-mortem* examination can, as a rule, clear up matters. As examples may be mentioned rupture of the heart after degeneration; bursting of an aneurism into various internal parts, as in an interesting case which came under my notice, in which an aneurism between the pillars of the diaphragm ruptured into the left pleural cavity; extensive pericardial hæmorrhage, or the bursting of an abscess into the pericardium; and sudden complete blocking of the pulmonary artery by a clot.

The more important sudden lesions not immediately fatal which we have to be prepared for in practice as possible complications of previous diseases are indicated in Table VI.

TABLE VI.

Secondary Lesions or Complications, usually sudden.

- I.—Pneumothorax.
- II.—Bursting of an abscess or collection of pus—Empyema—Pulmonary abscess—Mediastinal abscess.
- III.—Mediastinal and subcutaneous emphysema—Interstitial pulmonary emphysema—Hernia of lung.
- IV.—Rapid and extensive cardiac or pulmonary thrombosis.
- V.—Rupture of a cardiac valve or septum.
- VI.—Forms of hæmorrhage—Grave hæmoptysis.
- VII.—Changes affecting an aneurism—Rapid increase in size or extension in certain directions—Communication with a large vein, especially the superior vena cava.
- VIII.—Rupture of Œsophageal pouch.

Most of the lesions enumerated in the above Table we might reasonably be expected to recognise in the majority of cases, and the circumstances under which they occur are sufficiently well-known. I therefore only propose to say a few words about two

or three of the more prominent conditions coming under this group.

Pneumothorax is, of course, in the large majority of cases a complication of phthisis, but the possibility of its occurrence in this disease is not always appreciated as it ought to be, and I have known the lesion utterly mystify a clinical observer, even when all the evidences of the condition were perfectly pathognomonic. It must be remembered, moreover, that pneumothorax may be on a limited scale, owing to the existence of pleural adhesions, and then it may not give rise to any serious disturbance in the way of symptoms, though the physical signs may be characteristic enough. Cardiac thrombosis and its consequences demand very careful study, and may be exceedingly difficult to recognise or understand. Hæmoptysis is usually regarded as a symptom, but when severe it is really an evidence of some definite lesion, the nature of which is generally clear enough, in relation to the known circumstances of the case, but certainly not always. Its occurrence is, from this point of view, of great significance in certain cases of phthisis; as well as in relation to the bursting of an aneurism into the main air-passage. One of the most interesting lesions which may occur in connection with an intra-thoracic aneurism is the sudden formation of a communication between it and the superior vena cava, of which the following case was a striking instance.

Some years ago I had under my care a very obscure and complicated case of aneurism of the arch of the aorta. When I first saw the patient, he was in great distress on account of his breathing, and, by the way, was supposed to be suffering from asthma. He improved so much under treatment that he became rather lax in carrying out instructions, and after a day of sight-seeing he was during the night suddenly seized with very grave symptoms. A neighbouring practitioner was summoned, and the sight that met him was that of a man suffering from urgent dyspnœa, and struggling for his life; at the same time presenting a swollen and intensely cyanotic aspect. The patient was conscious that something had gone wrong in his chest; and drew the attention of the medical man to a tremendous thrill, and a whirring noise, which could even be heard at a distance. Need I say that he was somewhat taken aback, and could not quite understand the state of affairs. I saw the patient some hours

afterwards, and he was so changed that I could not have recognised him. The physical signs persisted, and all the phenomena of obstruction of the superior vena cava became extreme, but the patient lived for some weeks.

VIII.—COMBINATIONS ASSOCIATED WITH SUDDEN OR ACUTE DISORDERS OF FUNCTION, TEMPORARY OR PAROXYSMAL.

Under this head I have to draw attention to another most important group of combinations, in which sudden or acute disorders occur, sometimes very grave, which are often spoken of as functional, and which, at any rate, cannot be attributed directly to any definite structural lesion or change. Hence they afford endless opportunities for disputation and controversy as to their pathology. My own opinion is that this may differ materially in different cases, and a too narrow conception of the meaning and explanation of certain particular disorders may be very dangerous in relation to treatment.

The conditions to which I chiefly refer in this connection are:—(1) Respiratory disturbances, especially attacks of so-called “bronchial or spasmodic asthma”; cardiac dyspnoea, and certain other forms of disturbed or excessive breathing; disorders associated with the larynx, due to interference with intra-thoracic nerves; and certain diaphragmatic functional difficulties. (2) Cardio-vascular, including mainly excessive or disturbed cardiac movements of various kinds, and palpitation; weakness or failure of the cardiac action, leading to faintness or syncope; and the complaint known as “angina pectoris.” (3) Dysphagia, due to some functional disorder of the œsophagus. I may further note here that we should always take into consideration, in cases of acute inflammatory diseases of the chest, the important influence of the nervous system upon the respiratory and cardiac functions, by which the symptoms may be materially modified; and that in all cases we must be prepared for the possible tendency to what I may call “neurotic exaggeration” of symptoms which are associated with actual organic changes of various kinds.

In relation to my present subject, I am merely concerned with cases in which one or more of the conditions just indicated are added to or associated with organic diseases, with the general nature of which we, as medical men, should be fully acquainted,

while we must also be prepared to recognise the combinations in individual instances which come under our observation. Such terms as "asthma" and "angina pectoris" are unquestionably often thought to represent entirely independent complaints, at any rate by the laity; and we cannot too strongly insist upon the fact that they are not so in a large majority of cases, but that various structural changes, usually quite obvious, determine the occurrence of an attack. Some of the disorders alluded to may, like grave and sudden organic lesions, kill instantly or very rapidly, as when death happens from cardiac failure supervening on heart disease, or from angina pectoris; otherwise the attacks are of a temporary nature, and certain of them tend to be paroxysmal.

Asthma is a term of decidedly indefinite application, and it is not infrequently applied to cases which are really not asthmatic at all, while much more grave conditions, such as certain disturbances produced by an aneurism, may be mistaken for this complaint even by experienced observers. The attack or "fit" of asthma, however, as a rule presents very characteristic and well-known features. In the large majority of instances it supervenes upon distinct and obvious morbid changes associated with the chest, which tend to become more and more pronounced as the case progresses. The cases in which asthma occur are, as is familiar to all, usually more or less of the "emphysematous and bronchitic" type, but rigidity of the chest-walls, adhesion of the upper part of the lung, and other factors which I have already discussed, are often of much importance in these cases in relation to asthmatic attacks, at least adding to the difficulties associated therewith. Moreover, there may be a very complicated state of things in the chest, and then the trouble is likely to be all the greater. It is important to note that marked temporary increase of distension of the lungs often occurs during the asthmatic fit, for which due allowance has to be made. Another point to be remembered is, that chronic cardiac disease may be present, and also that the right cavities of the heart become more or less overloaded with blood during the paroxysm. These complications, when present, must be adequately taken into account, in relation to the symptoms observed in an asthmatic case.

Angina pectoris is another affection associated with the chest which usually complicates more or less definite morbid conditions

of an organic nature, and whatever view we may hold as to its pathology, it is obviously essential in each case to try to determine what the particular changes happen to be. Those which are most likely to be overlooked are mere atheroma or calcification of the aorta and coronary arteries, and cardiac degeneration not of a pronounced character.

IX.—COMBINED CONDITIONS ORIGINATING FROM THE ABDOMEN.

It may seem needless to burden a subject already sufficiently complicated by dragging in the abdomen in relation to the chest, but this aspect of it must not be altogether overlooked, though I will only allude to two or three points. It is not at all uncommon for accumulations of various kinds within the abdominal cavity so to interfere with the diaphragm and the thoracic contents, as to lead to a very decided combination of morbid conditions, which may demand active interference for their relief. The trouble is all the greater if there happen to be previous organic diseases within the thorax. Extreme tympanites, ascites, any large abdominal tumour, and pregnancy, afford familiar illustrations of the conditions originating these difficulties.

Again, an enlarged spleen or liver or a renal tumour may encroach in various degrees in an upward direction, so as to lead to more or less obvious or serious consequences. Very rarely a hernia of the stomach or other structure through the diaphragm into the pleural cavity takes place, with results very difficult to make out as a rule. The rupture of a hydatid cyst or an abscess, especially associated with the liver, into the pleura, lung, or other thoracic structure, affords another illustration of a lesion commencing within the abdomen, the consequences of which it is impossible to foretell. Sub-phrenic abscess must not be overlooked in this connection. I will only add further, that to be called in and expected to give an immediate and definite opinion, from one examination, as to the origin and progress of a chest-case which has started from some abdominal trouble, and which has existed perhaps for many weeks, having gone through various remarkable phases, to indicate precisely the existing state of things, and to lay down a definite line of treatment, is about the most trying experience and ordeal that any physician or surgeon, however skilled he may be, can be called upon to undergo.

(B.) Clinical Lessons.—Investigation of Chest-cases.

Having thus attempted to give some comprehensive summary of the chief combinations of morbid conditions of the chest, I now proceed to look at my subject from another point of view, with the intention of trying to bring out certain practical clinical lessons which I think it is calculated to teach, and of offering some general remarks on the investigation of chest-cases. I take it for granted to start with that the advantages of some systematic arrangement of this kind for clinical purposes will be acknowledged by all who have had much experience in such cases. Personally I have found it of the greatest help, and I have no hesitation in affirming that without a fairly clear comprehension of, at any rate, the more common chest-combinations which are likely to be met with, it is impossible to undertake the investigation of many individual thoracic cases with any degree of confidence or certainty as to the results. In proportion as the existing conditions are numerous and complicated, does a well-arranged and practical knowledge of the various aspects in which they may thus present themselves become of more and more service. Without such knowledge not a few cases must be absolutely bewildering and incomprehensible. On the other hand, cases which appear at first sight difficult and unintelligible, often become with its aid perfectly clear and simple. Proceeding then on this basis, there are certain points relating to the clinical investigation of chest-cases which I now submit as worthy of notice and attention.

(1) My first proposition, which needs to be emphatically urged in these days of hurry and bustle, is that every thoracic case is worthy of at least a fair amount of study and consideration, and that it is our duty to try to determine, as fully and as accurately as possible, what are the actual conditions which, in various combinations, we have to take into account. Certainly, considering the vital importance of the structures with which we are concerned, no case ought to be dealt with in the superficial, casual, and "free and easy" sort of style which is but too common in all kinds of practice. And, further, it may be affirmed that in a large number of instances a little trouble in the investigation will be rewarded with satisfactory results, even from the point of view of finding "interesting cases."

A chest-case would, I suppose, be ordinarily understood to signify one in which symptoms of some kind and degree attract notice to this region. If these should happen to be of a pronounced character, be they sudden, acute, or chronic, no doubt they would receive as a rule adequate consideration ; and it may be observed in passing how often serious combined morbid changes are thus brought to light by some accidental event, or, it may be, by what looks like a mere passing functional disorder. Should they, however, be slight or indefinite, then comes the special danger of superficialness or actual neglect of investigation. Over and over again have I found some apparently trivial symptoms to be the earliest revelation of various associated changes, not uncommonly of a pronounced and serious nature, of which it may be of the highest importance to the patient to be fully aware, if only from a preventive point of view.

(2) The next point which I wish to enforce is that every chest-case should be approached with an open, I may say a "comprehensive" mind, and an unbiassed judgment, both as regards structures and diseases. At any rate it is most dangerous to have a too definite or preconceived idea as to this or that organ being affected, the supposed nature of the complaint as expressed in a name, and the conditions which we expect to find. Of course we cannot help having often a general impression as to the kind of case which comes before us, and, indeed, its very aspect or the most cursory examination may tell us its nature positively up to a certain point. Not uncommonly, however, this is not so, for either the case does not present any distinctive features whatever on superficial observation, or we find to our astonishment that it is absolutely different from what we anticipated. We must always be prepared, moreover, to meet with combinations of morbid conditions, affecting several structures it may be, for which we were entirely unprepared, even in cases which are apparently clear and simple ; and sometimes we are confronted with such a complex or curious state of things that only a clinical observer, fully acquainted with the particulars I have indicated, is likely to understand it in the least. In dealing with sudden or acute cases we have to be specially on our guard against a too narrow conception of their nature and combinations, otherwise we shall be ever in danger of making most grave and irreparable blunders ; but even in chronic and ordinary cases the same principle must

guide us as a general rule if we wish to avoid serious errors in diagnosis.

(3) I now proceed to look at the clinical investigation of chest-cases from a more positive point of view, in its bearings upon my subject. I suppose we are all agreed that we ought to avail ourselves of every means which we can employ in such investigation, and to study intelligently all the clinical signs which are thus presented for our interpretation in any individual instance. At the same time the different methods and signs should be regarded in their due proportion, both in relation to the facility of carrying out the former, and the means which we have immediately at our command for doing so, and the actual or relative value of the phenomena upon which our diagnosis has to be founded. We must be especially careful in these days of progressive and aggressive science not to neglect the old methods which have served us in such good stead in the past, and without which we absolutely cannot get on, or to allow them to be entirely supplanted by others of recent introduction, which after all can only afford a limited kind of information, and some of which are by no means always reliable or easy of application.

Taking a comprehensive view of the more immediate investigation of a patient supposed to be suffering from some chest-affection, the process may be summed up as including:—

(1) Systematic *physical examination* of the thorax and its contents, by the more simple methods commonly recognised under this expression.

(2) Intelligent inquiry as to the presence or absence of *symptoms*—subjective or objective, local, general, and remote—so far as they are directly associated with, and the result of thoracic conditions; and the methodical study of any such phenomena which happen to be present.

(3) The employment in appropriate cases of *special methods*, and amongst these would come the use of the different instruments and other apparatus which are available for clinical purposes in connection with the thoracic structures.

I desire to offer a few practical remarks with regard to each of these divisions in their relation to the investigation of combined morbid conditions associated with the chest.

1. *Physical Examination.*

I have placed physical examination first for the following reasons. It is, in the first place, obviously the only means by which we can gain any reliable information whatever as to the presence and nature of most of the combinations of morbid changes affecting the chest and its contents of which I have been speaking, and, therefore, it constitutes the most advantageous starting point of our clinical investigation in a large number of instances. It is by the simpler methods commonly included under the expression "physical examination" that we recognise distinctly and positively the physical changes, or even sometimes the functional disorders, upon which symptoms depend. Without proper physical examination it is impossible in a large proportion of instances even to get an approximate idea as to the state of things in connection with this region, and obviously it is only in this way that we can acquire anything approaching definite and precise information about the various combinations of conditions which present themselves in numerous individual cases.

Secondly, it is very important to remember that combinations of thoracic morbid conditions are not uncommonly detected by physical examination which are not revealed by any symptoms whatever, or, at any rate, none of sufficient moment to attract attention. Therefore, it is a safe rule thus to investigate the chest more or less in every case which comes under our professional observation. I believe it would be a very good plan, especially under particular circumstances, if individuals would present themselves for examination from time to time, just to ascertain what is the condition of their important organs. Now and then, but only exceptionally, one does come across a wise person who thinks it worth his while and money to be thus overhauled, and, on the whole, these are about the most satisfactory cases to be met with in practice. The only opportunity, however, one usually gets of investigating from this aspect is in relation to life insurance, when we do sometimes discover very remarkable and unexpected morbid changes; and when an individual is about to take some important step in life, to which I need not more particularly refer.

Thirdly, physical examination often reveals readily and positively pronounced organic conditions, in various combinations,

which at once explain all the clinical phenomena observed, making the case perfectly clear and simple; and amongst these conditions it may detect one which demands immediate treatment. Moreover, we may thus discover some particular disease, or speedily get a general idea of the kind of case we have to deal with, and then, if we possess adequate knowledge, we understand what conditions we have further to look for under the particular circumstances. Again, physical examination may bring to our notice a certain change which we feel sure cannot be an independent one, such as a want of free entrance of air into, or actual collapse of, a lung, or a striking displacement of the heart, and may thus indicate the direction which our investigation should take, in order to find out the cause or causes of such change, whereby we may be led to the discovery of most important diseases.

There is one point that I wish especially to notice in this connection. It is often stated that certain conditions within the chest cannot be detected by physical examination with any certainty, or, at any rate, only exceptionally. I more especially allude to pleuritic and pericardial adhesions. Such a statement I strenuously dispute, and I maintain that these changes, as well as others more or less obscure, may frequently be demonstrated as parts of a case, if they are duly borne in mind and properly looked for, and if their signs are intelligently appreciated.

In the next place I desire to say a few words as to the general principles upon which physical examination of the chest should be conducted, in order to be of any real service in demonstrating the presence and nature of the various combined conditions which may be met with. Concisely stated, it must be always systematic, and as thorough and comprehensive in all respects as the circumstances of the case demand and permit, with due regard to the state of the patient. An unmethodical examination, or one limited to the upper part of the chest, and perhaps the cardiac region, is by no means adequate in any case, and such a mode of procedure habitually adopted is certain to lead to many disastrous results.

There is one tendency against which it is necessary to warn in this connection, and that is the practice of always looking for some special condition, such as lung-consolidation, a pleural effusion, or disease of a cardiac orifice or valve; and should either of these be found, fixing upon it and ignoring everything else.

Of course it is essential to be thoroughly familiar with the signs of such simple conditions, and to be able to recognise them positively, but we must never forget that in a large number of cases they are mixed up in every conceivable way. And here it is important to notice that the signs of particular physical conditions are often greatly influenced by their association with others, which indeed may obscure them altogether, or they intensify these signs, or modify them in various ways. For example, the effects of pronounced pulmonary emphysema in obscuring other serious diseases, which have been already alluded to, must always be borne in mind, and the same remark applies to not a few cases of bronchitis. Marked pleuritic conditions may also render it almost impossible to determine what changes involve the corresponding lung. Of course in every case the heart and great vessels ought to be invariably separately and systematically examined. Moreover, should any exceptional disease be suspected or discovered, such as an aneurism or solid tumour, it is well to have a definite and special plan of examination, which can be methodically carried out in such cases.

While it should be the rule in relation to physical examination of the chest to aim at finding out all the conditions present in a particular case, on the other hand much discretion is required not uncommonly in carrying it out, as in cases of an acute and complicated nature, where sudden grave lesions or disorders supervene on chronic diseases, or in advanced phthisical or cardiac cases. Under such circumstances our investigation should be as brief and as little disturbing to the patient as possible, even though we are not able to make out to our satisfaction the exact state of things, and in some instances we had far better omit physical examination altogether in the meanwhile. It is remarkable, however, what we may find out even then without disturbing the patient to any appreciable degree, if we go about the examination in the right way, and make good use of our eyes and hands.

The more simple methods of examination just alluded to, namely, inspection and palpation, are also often of the greatest service in the detection of certain associated physical conditions of the chest, especially when employed together, and for definite purposes, and I do not think that they are at all utilised to the extent that they might be.

There is one other point that is worth noting, namely, the essential value of certain special signs in the detection of a particular and unusual condition which happens to form part of a more or less complex case. Thus, the "bell-sound," or the "succussion-splash" may be the only evidence under such circumstances of the pleural condition with which these signs are severally associated.

LECTURE III.

2. *Symptomatology.*

MR. PRESIDENT AND GENTLEMEN,—Although in my last lecture I placed physical examination in the forefront, in relation to the investigation of combined chest-cases, I by no means wish to give it undue prominence. On the contrary, I feel it necessary to utter a protest against a practice which is not at all uncommon, namely, to be content with finding out in this way what physical changes or conditions, if any, exist, and looking at the case solely from this standpoint, estimating its importance simply by the presence or absence, and the degree of such changes. This is a dangerous error, and I now urge the imperative necessity of an intelligent study of the symptomatology in every instance, and of endeavouring to understand the phenomena complained of or observed, in their relation to the existing morbid conditions. I say "study" advisedly, as distinguished from a mere enumeration of chest-symptoms, which is of little value, as it may apply equally in any number of thoracic cases which are essentially different in character. At the same time a comprehensive knowledge of the symptoms associated with this region—local, general, and remote—which shall be always at command, and ready to be applied in the investigation of particular cases, is of the highest advantage.

I have already pointed out that there may be practically no symptoms even when very pronounced and complicated morbid changes are present in connection with the chest. This negative aspect, however, must not be overlooked, for it may be highly significant as indicating the pathological nature of these changes, showing that they are not, at any rate, of a serious character in

themselves, and that they do not materially interfere with the important thoracic contents.

But I have now to deal with chest-symptoms from their more positive aspect, and I am anxious to indicate as clearly as possible certain points which, in my opinion, are of the greatest consequence in relation to the subject which forms the basis of these lectures. In the first place, it must be remembered that the thoracic structures are closely related to each other, anatomically and physiologically, as well as pathologically, and it is a great mistake to separate too definitely the symptoms associated with particular organs. It must be familiar to any intelligent clinical observer that there is no actual line of demarcation between the symptoms due to pulmonary and cardiac diseases respectively, and when we have to deal with complicated conditions, any distinction of this kind becomes absolutely impossible and mischievous. Under these circumstances it is imperative that they should be studied on a thoroughly comprehensive basis, in order to understand their practical relations and significance. I must again allude here to the indefinite application and use of terms, even in connection with symptoms, such as dyspnœa, palpitation, and the like, which are commonly employed so vaguely as to become almost meaningless.

In an acute or sudden case the study of local chest-symptoms is of the utmost importance, and may reveal the presence of conditions or disturbances which cannot possibly be determined by physical examination, especially when the state of the patient does not allow such examination to be carried out efficiently. The phenomena of particular acute diseases, as described in text-books, are by no means always typical, but when we have to deal with the various combinations to which I have previously referred, they often become anything but characteristic. It is under these circumstances that the study of the symptoms becomes particularly instructive, but even in a simple case they may be highly suggestive, as indicating, for example, an asthmatic paroxysm or an attack of acute bronchitis associated with emphysema, an acute lobar or broncho-pneumonia, or even a pleurisy or pneumothorax. The severity and characters of pain and other morbid sensations, the kind of disturbance of breathing and the various noises associated therewith, the peculiarity of the cough and expectoration, and other symptoms

are all worthy of attention, and often reveal important features of the case. The varieties of so-called "dyspnœa" demand special study, for they are often most significant, and we may have to found our diagnosis of certain conditions very much on what we thus observe.

When circumstances permit, and especially in dealing with chronic cases, I think it is a good rule to start by finding out approximately or even fully by physical examination what conditions are present in connection with the chest, and then to study systematically the symptomatology, both comprehensively and individually, in relation to the sum total of these conditions. We thus obtain some definite idea as to the effects of each in contributing to the phenomena observed, as well as with regard to its influence in connection with particular symptoms. It must always be remembered that in complicated cases most of the symptoms are either produced or modified by more than one, it may be several factors, and it is decidedly to our patient's interest and advantage that we should find this out as precisely as possible. A known combination of certain morbid conditions will often prepare us for the occurrence of sudden attacks or accidental lesions, so that we ought to recognise without difficulty the symptoms by which they are respectively revealed.

It would be interesting if time permitted to discuss the effects of different combinations of morbid conditions, as well as of certain individual changes, upon particular symptoms, but I cannot do so on the present occasion.

I wish now to draw special attention to the essential importance of a single symptom in relation to diagnosis, in some cases of a mixed character. And here let me urge the great value of the senses of hearing and smell in the detection and recognition of certain of these symptoms, in addition to the exercise of the faculty of keen observation. Let me illustrate this point by two or three examples. A particular kind of disorder of breathing, or the quality of a cough, may certainly reveal to us at once not a few individual conditions; the characters of the materials expectorated are also often highly significant, and the sudden discharge of a quantity of pus may be the one indication of the bursting of an empyema into the lung, or of certain kinds of abscess into the air-passage, of the existence of which we might previously not

have been aware. To the sense of smell I have been indebted on several occasions for arriving at an immediate diagnosis as to the presence of conditions which had previously been absolutely overlooked. I allude, of course, to the offensive or fetid odour which the expired air may yield under certain circumstances, especially after a vigorous cough. This has revealed to me bronchiectasis in highly emphysematous lungs, which could not possibly be detected by physical examination, as well as gangrene of the lung in obscure cases; and obvious pyo-pneumothorax, which a careless and limited examination of the upper part of the chest had failed to detect. With regard to the sense of hearing, this is of essential value altogether apart from auscultation, in recognising peculiar characters of or sounds associated with the acts of breathing and coughing, as well as alterations in the voice. I have several times been enabled to make an immediate diagnosis in cases of obscure intra-thoracic aneurism on these data, some of which had even been admitted into the hospital wards as cases of asthma. One case was so extremely interesting, and taught me such a lesson, that I venture to describe briefly what happened.

A good many years ago, during the early period of my connection with the Brompton Hospital, on returning home, physically tired and mentally exhausted, after a hard day in the out-patient department, I found a man waiting for me with a letter from a lady asking me to see him (gratuitously of course), as he was suffering from bronchitis. I told him that I was not fit then to examine him properly, and asked him to come in the morning. It seemed to be a mere case of ordinary bronchitis and emphysema, but fortunately for me the patient gave a slight cough, and I instantly perceived that it was one of the obscure cases to which I have previously referred, in which an aneurism presses directly on the trachea. I told him to go home at once to bed, and that I would come to see him in the morning. Before I could do so, however, I received a message that he had begun to spit blood, and within twenty-four hours he died from profuse hæmoptysis, the aneurism having ruptured into the trachea.

Another aspect of the symptomatology of chest-diseases which is of essential importance, but is often regarded very casually, is the relation of general or remote symptoms to these affections, especially when they are of a combined character. Here, again, I must content myself with merely offering two or three prominent

illustrations. The occurrence, type, degree, mode of progress, and associated phenomena of fever are often most significant. Thus we may recognise not only pronounced inflammatory or tubercular cases, but also those indefinite changes going on in the lungs to which I have previously referred, and which cannot be detected in any other way. Moreover, by the presence of fever we may be led to conclude that there must be some obscure condition within the chest, as, for instance, a localised collection of pus, which is entirely out of reach of direct examination. In cases of phthisis I need scarcely say that pyrexia is a most valuable indication as to the activity and progress of this disease. Perhaps one of the most striking illustrations of the diagnostic value of this pathological state is when malignant endocarditis supervenes upon old chronic disease of the cardiac valves, which it may be impossible otherwise to recognise.

General wasting is another symptom which is very instructive, as indicating what is going on in the chest, not only in relation to phthisis, but also to other conditions. It may be of special importance in obscure cases of malignant disease, particularly when this involves the pleura. Anæmia likewise often deserves thoughtful attention. The phenomena resulting from obstruction of the general venous circulation, especially dropsy, always demand careful study. It is a very common tendency to associate these phenomena simply with heart disease. Let it be remembered, however, that this is by no means their sole cause, and that they may be very pronounced when the heart is practically normal, while in cardiac cases they are often aggravated by pulmonary conditions, which may be temporary. This class of symptoms, especially dropsy, are often of great help in determining what is the actual state of things in relation to the heart, and in this connection it may be particularly noted that functional disorder superadded to organic cardiac disease is often accountable for the occurrence of dropsy, or for its temporary aggravation. I will only further state that general symptoms not uncommonly add more or less to the troubles immediately connected with the chest, especially by disturbing the breathing and the cardiac action.

The relation of the pulse to morbid conditions of the chest opens up a very wide subject, upon which I cannot now attempt even to touch. I will only say that, regarding it merely as a

symptom, and without reference to any elaborate methods of investigation, it affords, in a large number of instances, most valuable diagnostic information about combinations of these conditions, which I do not think is always adequately appreciated. I may, by the way, draw attention to the fact that the absence of the radial pulse on one side is another important point to be remembered in relation to the diagnosis of an obscure intra-thoracic aneurism.

I have incidentally referred to certain of the minor structures contained in the mediastinum in my preceding remarks. I wish now merely to point out that interference with these structures, or their implication in actual organic changes, is chiefly indicated by what may be regarded as mere symptoms, as distinguished from physical signs. These may be merely modifications of the ordinary chest-symptoms, to which, however, they give special characters, such as pain, cough, respiratory disorders, or cardiac phenomena; but some are of a more individual character, such as dysphagia due to obstruction of the œsophagus, or signs of implication of the sympathetic nerve, of certain veins, or of the thoracic duct. The structure last-mentioned is very apt to be forgotten, but its obstruction leads to very marked emaciation. I may mention that I have met with a case of complete closure of the superior vena cava, which was not associated with any prominent disease, but was simply the result of a localised thickening connected with a pleural adhesion, which had completely encircled the vein.

3. *Special Methods of Investigation.*

It would obviously be impossible for me to deal at any length in these lectures with the various methods which are employed at the present time in the investigation of morbid conditions of the thorax and its contents. I can only indicate their general nature, and say a few words about each, in its relation to my subject. Those to which I propose to refer are:—(a) Examination of the sputum. (b) The use of certain instruments and other apparatus for particular purposes. (c) Operative procedures. (d) Examination of the larynx and trachea. (e) Examination of the œsophagus.

(a) *Examination of the Sputum.*—When carried out in a rational manner, there can be no doubt whatever that systematic examina-

tion of the materials discharged by expectoration is of the utmost value in many cases of a more or less combined nature, by giving us definite information about special pathological changes and conditions associated with the respiratory organs. I have already alluded to certain points relating to the general examination of the sputum, but I take this opportunity of saying that such simple examination is often most instructive, and it is by no means carried out to the extent which, and as methodically as, it ought to be. Of its chemical examination I can say nothing from personal knowledge. As to its microscopical investigation, this is so thoroughly familiar to everyone nowadays, that I almost blush to mention it. I will only venture to hint that it is always desirable to carry it out with some degree of intelligence and common sense; and that it cannot invariably be relied upon, either from its positive or negative aspect. At the same time I fully recognise its importance, not only in relation to the detection of tubercular lesions, but also in revealing destruction of the lung-tissues, gangrene, actinomycosis, and other conditions, of which we might otherwise have no definite knowledge.

(b) *Use of Instruments, &c.*—There is undoubtedly a tendency at the present day among the more scientific members of our profession, especially what I may call the “advanced juniors,” to make use for clinical purposes of different kinds of apparatus, not uncommonly of a very elaborate kind, which no doubt give more accurate information about various details relating to the size and conformation of the chest, or the respiratory and circulatory functions and movements, than can otherwise be obtained. I quite grant that they might be useful in certain combined chest-cases, and especially for purposes of record for future reference, but I must honestly confess that my sympathies are not in this direction, and I have seldom met with any case in which such methods of investigation could have taught me anything that it was really important for me to know, from a clinical or therapeutic point of view, in addition to what I had ascertained in other ways. Personally, I have always had a strong inclination towards simplicity in examination, and have never cared for employing elaborate instruments of any kind; nor do I hesitate to affirm that, as a rule, they are not required. At any rate, I must again express my opinion that no instrument ought to be allowed to take the place of the trained and educated senses of sight and

touch, used in a simple and intelligent manner. Life is too short, and the exigencies of medical practice are too pressing, to allow of the regular or even frequent use of methods of investigation which require much time and are difficult of application, and the majority of which only those specially trained can possibly employ. With the ordinary kinds of apparatus coming under the present category, such as the spirometer, cyrtometer, sphygmograph, cardiograph, &c., no doubt you are all familiar; but if you want information with regard to some of the more recently introduced instruments, I may refer you to the "Goulstonian Lectures" for 1894, on "The Physics of the Circulation," by my friend, Dr. Paul Chapman, of Hereford; and to the recent work on 'Pulse-gauging,' by my old friend and fellow-student, Dr. George Oliver, of Harrogate.

(c) *Operative procedures.*—I must not encroach upon the domain of the surgeon, but cannot avoid pointing out the essential value of certain operative procedures in the investigation of not a few more or less complicated chest-cases, which I have on many occasions found of the greatest service under such circumstances. I allude more particularly of course to the use of the exploring needle or trochar, and other measures intended to demonstrate the presence and situation of fluid in either serous cavity, as well as its nature; or the existence of an obscure abscess in the lung or elsewhere, or of a hydatid tumour. More serious operations may be demanded for diagnostic purposes in exceptional instances, but to these I need not further refer.

(d) *Examination of the Larynx and Trachea.*—The inherent importance of laryngoscopic examination in relation to certain intra-thoracic diseases is so well known that I need scarcely do more than mention it. Not only does it directly reveal associated morbid states in the larynx, or even in the trachea, especially tubercular and syphilitic, but the signs produced as the result of interference with one or other of the laryngeal nerves may be almost the only data upon which we can positively recognise an aneurism or growth obscured by other conditions within the chest. Similar signs may be associated with an adhesion and fibroid thickening in a case of old chronic apical phthisis. I may also allude here to "tracheal tugging," a sign which Surgeon-Major Porter has shown to be of real service in the diagnosis of deep-seated aneurism.

(e) *Examination of the Œsophagus.*—In relation to this form of special examination, I will merely remark that it may be useful, not only in the investigation of morbid conditions of the Œsophagus itself, but also of diseases in its vicinity. Obviously it requires the aid of a skilful manipulator.

(C.) Remarks on Treatment.

It must appear a very rash and irrational procedure on my part to launch out into the vast subject of treatment at the conclusion of these lectures, and yet I cannot resist the inclination to make an attempt to deal with it from certain general aspects, in its relation to the combinations of morbid conditions of the chest. Of course I shall say but little about therapeutic methods or agents, and my object is simply to bring into prominence a few broad principles or indications, which I think need to be specially enforced at the present time, and which my subject obviously and fairly suggests.

1. The management of chest-affections is far from being such a simple and easy matter as many people seem to imagine, and they certainly cannot as a rule be dealt with as individual entities, to be severally treated on a routine and settled system or plan, or with a particular remedy, varying according to the age in which we happen to live, the prevailing therapeutic fashion or fad, or the personal, and it may be very peculiar and original views of the individual medical practitioner or "scientific therapist." Still less ought we to be content with merely treating symptoms, a practice but too often habitually adopted, sometimes, indeed, with remarkable success and undeserved kudos, for the man who acts on this principle, and who does not take the trouble to investigate his cases, will often administer powerful drugs, with benefit it may be, when they are in reality very dangerous, and when a well-informed practitioner, who had ascertained the facts of the particular case, would not dare to use them. I have more than once known a very ignorant and most unscrupulous person thus score a "big success." In the long run, however, this method of procedure is certain to do infinite harm, and to lead to lamentable results, of which only a very small proportion actually come to light. And not only is it directly mischievous and dangerous, but it does infinite harm by allowing serious morbid conditions

within the chest to progress unchecked, which might often be arrested, or at any rate controlled in their early stages, if their presence had been properly detected.

And here I must enter an emphatic protest against a state of things extensively prevailing, and with which as a profession we are deeply concerned, that not only permits, but encourages in a high degree the evil against which I have been speaking, namely, the prevalence of "cheap dispensaries," where so many patients are "polished off" within the hour; the employment of ignorant unqualified assistants; and the encroachment of the "prescribing chemist" on the domain of the medical practitioner. We do occasionally see in the newspapers some startling revelations brought out in the coroner's court, but these only give a faint hint as to what is actually proceeding on a very large scale. These revelations, however, do not lead to any change, and things go on just as before.

After this digression I return to my point, and must insist on the fact that a large proportion of chest-cases, even when they belong to a particular category, must as a necessary consequence of their combined conditions present more or less difficulty in their management, and that they ought always to receive due consideration from a therapeutic as well as a diagnostic standpoint. Sometimes the difficulties are very great, and we may be able to do little or nothing for our patient. But while fully recognising this aspect of the question, I affirm, on the other hand, that much can often be done, even in highly complicated cases, in the way of treatment, if we study them adequately and intelligently, and deal with the existing conditions rationally and judiciously.

2. Now the first thing we have obviously to determine, in relation to the treatment of combined chest-conditions in a particular case, is what we can, and what we cannot do. We are bound to face the uncomplimentary fact that there are morbid changes which we cannot influence materially, or perhaps not at all, and we had therefore better leave them alone. Of course there are grave diseases for which we can do absolutely nothing, such as malignant growths, certain glandular enlargements, and, I am afraid I must add, certain cases of acute and rapidly progressive tuberculosis. Under these circumstances I think we ought to be very cautious in using powerful drugs, or practising special methods of treatment, the good results of which are, to say the

least, highly problematic, though of course it is impossible to lay down any "hard and fast" rule in this matter, and each case must be dealt with on its merits.

There is another class of cases of very common occurrence, in which permanent changes in various combinations affect the chest and its contents, not necessarily immediately dangerous or serious in themselves, but which give rise to more or less troublesome symptoms, and yet we can do little or nothing for them directly. Under these circumstances our main indication is to try to get the patient to understand the state of things; to learn to put up with and make the best of them, accommodating himself or herself to existing conditions; and to ward off further evils by judicious care, and avoiding doing stupid and foolish acts which are likely to bring on additional troubles. I must say that patients do not like this kind of advice, and, as a rule, resent our ignorance and incompetency, but really it is often the best and most honest advice that we can give, and in the long run many come to acknowledge this fact. A large number of cases coming under this category merely present the combination of minor changes to which I referred in my first lecture. Others belong to the group, and a very trying and sad one it is, where individuals who have led a too active and energetic life, and who often boast that "they have never had a day's illness," are unexpectedly found out and pulled up, by the development of one or more prominent chest-symptoms, or by some sudden serious disturbance, and it is then discovered that more or less grave morbid conditions have been slowly but surely progressing for some time, of which these phenomena are the outcome and manifestation. To bring such patients to reason, and to make them understand that they must give up their hunting and shooting, their mountain climbing, their boxing and fencing, their lawn tennis, or even their golf, is anything but an easy task for the medical practitioner. Moreover, as regards "low spirits" and "temper," I am afraid it is usually a bad business for those who are brought much into contact with them. Even the "old man," who has long passed his "three score years and ten," and has had a "real good time" in every respect, cannot understand why he should come to the "end of his tether," and that not even "hypodermic injection of spermine" can infuse new life into him.

There is still another class of cases to which I must allude here,

namely, those in which definite and easily recognised chronic morbid conditions exist in the chest, in various combinations, but entirely inactive and quiescent, though no remedies or methods of treatment can modify them in the least degree. There are hundreds and thousands of cases of this kind, to which we apply particular names, and which throng our hospital out-patient rooms, where I venture to affirm that no active treatment at all is needed, and, indeed, such treatment is often worse than useless, for the patients would be far better if they never touched a drop of physic, or covered their chests with filthy plasters or other appliances of a like kind. And here let me say a word as to the frequent necessity of a more judicious use of applications to the chest even by medical men. By way of illustration, may I call attention to the fact that to go on applying some preparation of iodine, sometimes too with not very pleasant results to the patient, day after day and week after week, for the supposed purpose of "absorbing" something which cannot possibly be absorbed, such as a greatly thickened pleura or a densely fibroid lung of long duration, is at least not "scientific therapeutics." Of course this procedure may be of service as a "placebo," or to relieve a symptom, when judiciously carried out, but that is altogether another matter. And while I am on this subject, I will venture to suggest that in acute chest-cases it is always desirable to be particularly cautious in the use of powerful and irritating applications to the skin, especially in their early stage. Apart from the discomfort and possible injury to the patient, if the surface of the chest is made entirely or extensively raw at the outset, no room is left for any subsequent treatment of this kind which might be of real service, while it may also seriously interfere with operative measures which might be called for.

A very important matter in relation to the classes of cases I am now discussing is that, although any active treatment is decidedly contra-indicated, the prevention of any further chest complication is of the greatest consequence, and more or less stringent measures towards this end have often to be carried out. Obviously climate comes in here as a valuable therapeutic factor, but due care is necessary even under the most favourable climatic conditions. Moreover, the great advantages of "home treatment" must also be duly recognised in this connection, the good effects

of which may be very striking. I have already alluded to patients suffering from chest-affections who are able and willing to remain in-doors all the winter, under comfortable conditions, and thus not only prolong their lives considerably, but often manage to have by no means an unpleasant time. But they are not all so amenable to reason, and what one finds is that not a few individuals suffering, it may be, from even serious chest diseases, want to enjoy all the amusements and fun that are going on in the world, without any regard to the risks involved, and they expect us, in our professional capacity, to avert all the evils which their imprudence brings upon them, and which sometimes they richly deserve. I have known patients even in advanced phthisis who have regarded it as a very great hardship that they were not allowed to go to a theatre in a thick London fog, or to a crowded ball; and as to insisting upon their wearing a "high evening dress," well! that is going beyond female endurance!

From the point of view I am now discussing, in-patient hospital treatment becomes an inestimable boon, even in a "Hospital for Consumption," with all its supposed risks, and my personal observation and experience will bear ample and emphatic testimony in support of this statement. At the same time, in the light of modern researches and observations, I fully admit that it is our duty to take every possible precaution to prevent tubercular infection; and it may be a question whether it is desirable to bring phthisical patients, in whom the disease has been practically arrested and cured, into too close contact with those who are suffering from the complaint in an active form.

The next point worthy of notice is that, in the cases we have been considering, should any complication supervene, even if it be but a slight cold, it ought always to receive immediate attention. Neglect of this principle is accountable for much serious mischief. Treatment even then, however, does not necessarily imply the adoption of any very active therapeutic measures. Rest in bed, with a warm fire and other comforts, and the use of familiar simple remedies, often averts further trouble, and soon restores the patient to his previous condition. Of course when a complication becomes acute and pronounced, things assume a different aspect, and we must deal with them accordingly, as I shall immediately indicate. I may remark that when an acute

exacerbation occurs in a phthisical case, we have to be particularly cautious and judicious in our treatment, else we may readily do much mischief.

3. I now proceed to say a few words about the treatment of combinations of diseases or morbid conditions of the chest in acute cases, as they come before us in practice, and for which we are expected to do something definite. Obviously it is impossible to lay down any distinct general rules, but every case must be studied individually, bearing in mind the recognised principles which usually guide us in dealing with the several acute chest-affections. It is especially desirable in these cases to try to realise fully at the outset what conditions we have actually to treat, and what we propose to do by our therapeutic measures. I think the general tendency is to be too active than the reverse, and it is well to lean to the side of discretion. A routine line of treatment directed only to one factor in an acute combined case, say pneumonia, is decidedly to be avoided. The supervention of acute on pronounced chronic conditions often gives us a very trying case to manage, and if the combination is not understood it will probably be a bad time for the patient; if nothing worse happens, he is pretty sure to be subjected to a more energetic treatment than the circumstances of the case demand. Of all the cases that harass the medical practitioner, and make him feel his smallness and impotence, I think there are none worse than those complicated acute inflammatory chest-cases of rapid onset and progress to which I referred in my previous lecture. Some of them are obviously hopeless almost from the first; in others we feel that we must make a fight for life, and there is no greater satisfaction than when, by sticking to our patient and encouraging others to do the same, we succeed, aided by intelligent, judicious, and devoted nursing, in bringing the conflict to a favourable issue and, humanly speaking, save his life. Unquestionably the rational administration of medicinal agents becomes in these cases of the highest value, especially of those which affect the functions of the vital organs, or which assist or modify expectoration. I cannot now refer to other details of treatment, and will only say that it is in grave acute chest conditions that we derive such timely help from active therapeutic measures intended for special purposes, more particularly abstraction of blood, either by venesection or local methods, or even by cardiocentesis, as in a case reported in

the 'British Medical Journal,' December 15th, 1894. free dry-cupping, inhalation of oxygen, artificial respiration, or subcutaneous injection of powerful drugs, such as ether, strychnine, or digitalin. How far the injection of antitoxins is going to be of service to us in the future in the treatment of formidable acute inflammatory diseases of the contents of the thorax remains to be seen, but so far as diphtheritic cases are concerned I can affirm that the results which have been achieved in my wards at University Hospital, under the active management of my house-physician, Mr. Bunch, are most satisfactory, and fully bear out the favourable reports from other quarters.

4. The actual treatment of chronic chest-cases which come before us, presenting such a variety of morbid conditions, in every conceivable combination and not uncommonly highly complicated, is a problem that always requires thoughtful consideration, and often gives abundant scope for the application of sound therapeutic knowledge and skill, guided by discretion and common-sense on the part of the individual practitioner. It is hardly practicable to discuss this question to any advantage from a general standpoint, and at any rate on the present occasion I must content myself with simply offering a few suggestions. Different kinds of cases must of course be dealt with in different ways, but it is here again always well to determine what conditions are actually present, and what we can do, before proceeding to the adoption of any active measures. As I have already intimated, many cases of even pronounced chronic chest-disease do not require any active measures at all, at any rate as a constant or regular practice; but in others we can do much, by the administration of suitable remedies or in other ways, to influence or control morbid processes, to relieve or help symptoms, or to affect temporary conditions or disturbances which so often form part of the history of these cases. Of course, general or constitutional, as well as climatic treatment, and that directed to the digestive or other systems, are frequently of essential importance; and I must draw special attention to the great value of more or less prolonged rest in bed from time to time, particularly in cardiac cases. As regards the use of medicines, I think the tendency is to overdo things in this direction in chronic cases even when they are needed, and I may observe that sometimes we find a condition present which distinctly contraindicates the use of a particular

drug, or at any rate should make us very cautious in its administration, as, for example, extensive pericardial adhesion, which certainly is not favourable for the employment of digitalis and allied agents. It is interesting and important to note, that if one has the opportunity of watching the progress of chronic chest-cases of a combined nature, it will frequently be found that they present exacerbations of symptoms from time to time which pass away under treatment, but in many of them a period comes when nothing further can be done, and the patient must inevitably succumb. The laity cannot understand this at all, and do not see why what has been accomplished before cannot be done again, and I must say that occasionally even a medical man does not quite realise the state of things under these circumstances, but expects the "consulting physician" to achieve impossible results.

5. I now come to the consideration of a definite principle in the treatment of combined chest-cases of all kinds, be they sudden, acute, or chronic, as well as indeed in those of a simple nature, and one which I regard as of the greatest consequence. It is this: To be always on the look-out for, and prepared to deal more or less actively with certain morbid conditions, often of a pronounced kind, which we can materially influence by treatment, or even absolutely get rid of, but which if allowed to continue are sure to lead to serious results, either immediate or remote. This principle applies also to certain individual diseases of a grave nature, which may in not a few instances be greatly checked, or even entirely cured by appropriate treatment. It opens up a wide range of subjects, and in individual cases often gives us occasion for deep and anxious thought in determining what is best to be done for our patient's interests; while special difficulties may face us as to carrying out a method of treatment which we know is clearly indicated. There are some who, in relation to certain of the conditions to which I allude, are, I think, inclined to be too hasty or even rash in the employment of vigorous and heroic measures, but the general tendency is decidedly in the opposite direction, and one not uncommonly sees an aggravating "pottering" about cases, when there is really something very definite to be done. I have already referred to the uselessness of applying iodine to the chest when it is not needed; what is much worse, however, is playing with measures of this kind and wasting valuable time, when some condition is

present which demands immediate and urgent relief, or the adoption of a particular line of active treatment, which at any rate affords some chance of getting rid of it in course of time.

Without any comment, I can now only mention the chief conditions or diseases to which the preceding remarks refer, namely, fluid-effusions in the serous cavities; pneumothorax and its effects or accompaniments; purulent accumulations of any kind, whether empyema, pyo-pericardium, or either of the several abscesses; excessive secretions and morbid products in the air-tubes or pulmonary vesicles, especially if of a purulent or fetid character, as well as materials formed in phthisical cavities, special care being taken as far as possible not to allow persistent accumulation of these fluids in the bases of the lungs; solid inflammatory products in the lungs, the remains of pneumonia or bronchopneumonia, which, even when very extensive and of long standing, may sometimes be got rid of entirely by appropriate treatment, systematically and diligently carried out; syphilitic changes, often markedly benefited by specific remedies; aneurism, which is in not a few instances remarkably amenable to treatment; cardiac thrombosis; and such exceptional diseases as hydatids or actinomycosis. To the individual treatment of any of these conditions I obviously cannot now even allude, but they illustrate in various ways the important principle which, I think, needs strongly to be enforced.

6. The treatment of temporary disorders of a more or less serious nature, occurring as complications of various diseases or combinations, whether acute or chronic, is another aspect of the treatment of chest-cases which always demands thoughtful consideration, as well as often promptness of action. Many of these disturbances yield readily to simple measures, such as rest, warmth, posture, and the use of old-fashioned and comparatively harmless remedies, such as "ammonia with ether." The obvious tendency nowadays, however, is to rush off to certain special drugs or methods of treatment, without at all considering the case which has actually to be dealt with, or making any attempt to understand the conditions present. I allude more particularly to the treatment of attacks of spasmodic asthma and angina pectoris. I have no hesitation in affirming that such attacks, or supposed attacks (for the disturbances called by these names are by no means always correctly so designated), are often regarded

from too narrow and restricted a standpoint as regards the adoption of measures for their immediate relief; that different cases require to be treated in different ways; and that it is a serious mistake to fly to any one remedy as a routine practice. Further, we must never forget that by the repeated use of these remedies, which are usually powerful and dangerous, we may be doing positive mischief; and especially that we may be laying the foundation for their habitual employment by patients themselves on the slightest provocation, the injurious results of which practice we so constantly meet with at the present time, when all kinds of drugs and preparations, in convenient and attractive forms for use, can be so easily obtained. If time permitted, I could mention numerous cases which have come under my own observation illustrating this point, and showing the necessity for the greatest caution on the part of the medical practitioner in dealing with attacks of different kinds associated with the chest, especially when they are likely to be repeated or paroxysmal. At the same time I fully recognise the remarkable effects which can be produced by certain agents which modern experimental pharmacology has provided for us, as well as their essential value in the treatment of the conditions of which I am now speaking, provided they are employed judiciously, and under the direct supervision of a medical man who knows what he is about. Nor must I forget to note here that some of the very active measures to which I have previously alluded may be urgently demanded in cases belonging to the present category, and that they may be immediately instrumental in averting threatened death.

7. The treatment of symptoms opens up most important questions in relation to combined morbid conditions of the chest, and calls for much consideration in a large number of instances. It is impossible for me now, however, to do more than offer a few general remarks on the point. When in an earlier part of this lecture I strongly condemned the mere symptomatic treatment of chest-cases, of course I did not mean to imply that they should not receive due attention when required. As a matter of fact they often need a good deal of consideration, and it is by no means easy to cope with them under many circumstances in which various thoracic changes exist together. But here comes in the essential importance of studying each symptom individually in

relation to the conditions present, before attempting to influence it. It frequently happens that we then find that little or nothing can be done for a particular symptom which is troubling the patient, and what we have got to do is to enforce the principle to which I have previously referred, namely, that he must learn to accommodate himself to his circumstances. This applies more especially to disturbances of respiration and cardiac action. On the contrary, it may be that there is some state of things within the chest, which can at once be recognised as the cause of the disorder, and that treatment directed thereto will immediately relieve the symptom or symptoms thus produced, even when they are of a severe or grave character. To go on pouring in drugs for the relief of urgent dyspnoea and palpitation, so-called, obviously depending upon a large pleural effusion which demands instant removal, is certainly not rational treatment, and yet it is possible even in these enlightened days. Again, it is often not desirable to check a particular symptom, even when this can be done, such as cough, provided it serves some useful purpose, though it may at the same time perhaps be controlled and helped in various ways. One general rule, at any rate, should be followed in dealing with symptoms in combined chest-cases, and that is not to give more medicine than is really needed, and to employ simple and harmless remedies as much as possible. I may draw attention to the great advantage to be derived in relation to thoracic symptoms not uncommonly from the adoption of treatment directed to some particular general condition or conditions, especially anæmia, emaciation, and obesity, though I think the last-mentioned is sometimes rather injudiciously attacked. Nor must I overlook the immense relief to be often obtained by getting rid without delay of certain abdominal accumulations which physically interfere with the diaphragm and thoracic contents, as well as of extensive subcutaneous dropsy. The beneficial effects which thus follow tapping for ascites, or relieving anasarca by operative measures of different kinds, have in my experience of a good many cases been most remarkable.

8. I now come to my last point bearing upon the treatment of combined chest-cases, and that is to say a few words about special therapeutic methods. I need scarcely remind you that we are living in an age when, to say the least, there is no great respect paid to the traditional therapeutic measures handed down to us

by our forefathers and predecessors; and when active and energetic workers are, on all hands, trying to discover new systems, methods, or even remedies, which will enable us to cope more effectually and successfully with disease in its varied and complex forms. When a man reaches a certain period of life, however, this sort of thing becomes a little bit trying, and he is inclined to become decidedly "conservative" in his views. Personally, I confess I sometimes feel quite bewildered, and find it no easy matter to "keep up with the times." Unfortunately, too, new systems or methods do not always hold their ground, and are occasionally, indeed, extremely short-lived; while, as to individual remedies, they are "here to-day and gone to-morrow," one succeeding the other in the most confusing manner possible. It behoves us, therefore, as a profession, to be somewhat cautious in our so-called "progress," and not to be too eager to adopt and practise supposed "cures," which a little consideration may show have really no rational foundation. Such caution is especially necessary in relation to the treatment of diseases of the chest, and a comparatively recent experience gave us all round a lesson which, it is to be hoped, will not soon be forgotten.

The more prominent special methods of treatment at present in vogue in relation to chest-affections, may be summed up as follows:—(1) Antiseptic treatment, practised in various ways, including intra-laryngeal injections, a method recently brought prominently before the profession by Dr. Colin Campbell. The use of antiseptics may unquestionably be of the greatest value in many combined chest-cases, and not merely in those of a phthisical nature. (2) Hypodermic injections of different kinds, which may be rational enough in connection with certain exceptional conditions, but, on the whole, as at present recommended and carried out, rather indicate a want of any actual clinical or even pathological knowledge of the grave diseases with which they profess to deal, and sometimes border on the absurd. (3) Climatic treatment, to which is added not uncommonly some particular "cure." About this treatment, which, of course, is the essential requirement in a large number of instances, I will only say that I find that the "resident doctors" in any "health resort" of this kind do not at all like a very advanced or complicated chest-case to deal with, but almost invariably, and for obvious reasons, give their opinion that their particular climate

will not be suitable for the patient, and that he had better go elsewhere or stay at home. (4) The use of "respiratory gymnastics," often of the greatest service for various purposes, when properly carried out. (5) Methods connected with the employment of "condensed or rarefied air," especially for emphysematous cases. (6) Treatment directed to the nasal cavities and the throat, which, in appropriate cases, is of unquestionable advantage. (7) Mechanical or physical methods practised in the treatment of cardiac affections, especially massage, graduated mountain-climbing, and certain special exercises. With regard to these methods, no doubt they are most beneficial in suitable cases, as I can testify, but each one requires very careful consideration before it is treated in any such way. To recommend and practise systematic and energetic massage for a highly complicated and grave cardiac case, presenting also extensive atheroma and calcification of the aorta, with an acute malignant endocarditis added to these conditions, as I have known actually happen, does not strike one as "rational therapeutics."

The preceding remarks have been intended merely to bring to your remembrance, without attempting to discuss them, certain methods of treatment, one or other of which might appropriately be called for in the management of more or less complicated chest-conditions. Their individual application must be left to the matured judgment, practical experience, enlightened common-sense, and honesty of purpose of each member of the profession to which we have the privilege and honour to belong.

And now, Mr. President and Gentlemen, my task is ended. I am but too conscious of the imperfect manner in which it has been performed. One of the greatest and most trying problems which the medical profession has to face at the present day, is how to diminish by preventive measures the enormous number of cases of chest-disease which overwhelm us on all sides; and how most effectually to cope with these diseases in their many forms and combinations, so as to restore health, to prolong life, or to lessen human suffering, according to the circumstances and conditions with which we have to deal. I can honestly say that my object in these lectures has been to contribute something, however insignificant, to the attainment of these ends. Increasing experience has made me feel more and more strongly that before we can succeed in our aims to anything like a satisfactory degree,

we must not be content with a general, and often vague or theoretical conception of the maladies against which we have to contend, or of their treatment; and I venture further to suggest, with all deference and respect, that we cannot consent to be guided in this matter solely by the teaching of modern experimental pathology or pharmacology. We are bound to realise things as they actually exist in living patients, and it is from this point of view that I have thought it might be of some positive advantage to bring the combinations of morbid conditions of the chest prominently before the profession, at the same time trying to arrange them under some kind of order; to take a comprehensive survey of their clinical investigation; and to glance at the more important principles bearing upon their practical management. On some points I have felt it my duty to speak out with no uncertain sound, but I trust that I have said nothing which can justly give offence to anyone. It now only remains for me most cordially to thank the Council of the Medical Society of London for the great honour they conferred upon me in electing me "Lettsomian Lecturer," and to express my deep obligation to you, Mr. President, and to those other gentlemen who have sustained me by their presence, and have so patiently listened to my tedious discourses.

January 28th, 1895.

A SUCCESSFUL CASE OF PARACENTESIS PERI-CARDII.

By PERCY KIDD, M.D. Oxon., F.R.C.P. Lond.

A MAN aged 34 years, married, came to the out-patient department of the Brompton Hospital on June 6th, 1894, and was admitted by my colleague, Dr. Habershon, under my care, on account of severe dyspnœa. On admission there was extreme dyspnœa, both inspiratory and expiratory. The face was pale, ashy, and bedewed with a cold clammy sweat. The expression was anxious. A superficial and rapid examination revealed the presence of a pulse of high tension, and hypertrophy and dilatation of the left ventricle. There was œdema of the bases of the lungs, without signs of general bronchitis, and a small pleural effusion on the right side. The urine contained a small quantity of albumen. The case was regarded as one of granular kidney with asthma probably of uræmic origin. A hypodermic injection of a quarter of a grain of morphia was at once given, and in about 20 minutes the dyspnœa had almost disappeared, and the patient expressed himself as feeling fairly comfortable. He was then ordered to take liquor trinitrini, 1 minim, every four hours. Under this treatment he continued to improve. Occasional asthmatic attacks were successfully treated by inhalations of amyl nitrite. As soon as his condition permitted, the following note was taken:—
 “Family history unimportant. Previous history: Painter’s colic in 1884, and an attack of hæmoptysis in 1889. Ailing three years with cough and occasional hæmoptysis. Present illness began at Christmas, 1893, with hæmoptysis, followed by recurring attacks of paroxysmal dyspnœa. The patient is pale and is still somewhat dyspnœic. Maintains a sitting or semi-recumbent position day and night. Pulse 98, of medium size, regular, tension much increased, artery hard. Heart: Apex beat at lower border of sixth rib half an inch external to the nipple line. Impulse forcible and diffused. Dulness begins at the fourth rib on the left side

and extends outwards to the position of the apex beat. To the right the cardiac dulness merges in the pleural dulness to be subsequently described. Cardiac rhythm cantering, the first of the three sounds heard corresponding with the carotid pulse. Aortic second sound much accentuated. Lungs: On the right side in front dulness from the fourth rib downwards, and behind from the angle of the scapula to the base. Over the dull area breath sounds weak and vocal fremitus diminished. At both posterior bases scanty subcrepitant râles. Breath sounds over left lung and upper part of right vesicular and loud. No rhonchi. Urine pale, acid; sp. gr., 1010; albumen, one-tenth; no casts. Ophthalmoscopic examination: Numerous small glistening white patches in the retina on each side external to the discs in the neighbourhood of the macula. Marked whitish thickening of the coats of the retinal vessels."

For the next fortnight there was little change. Asthmatic attacks were relieved by amyl nitrite as a rule, but occasionally a hypodermic injection of morphia had to be administered.—July 22nd: Dyspnœa has been increasing the last few days. The legs are now somewhat swollen and the signs of pleural effusion on the right side have increased. Paracentesis of the right pleura was performed, and 63 ounces of rose-coloured fluid were removed. Great relief was obtained, the dyspnœa diminished, and the œdema of the legs almost disappeared.—July 12th: Paracentesis had to be performed again as further effusion into the right pleura had occurred. On this occasion 40 ounces were withdrawn, the fluid showing the same sanguineous character as before. Again great relief was experienced, and for the first time the cantering action of the heart was replaced by the normal rhythm, the first sound being short, the second sound accentuated generally. After about a week the old symptoms returned, and on July 26th the patient complained of severe pain in the left side and was much distressed. A double pericardial friction sound was now heard over the whole præcordia, loudest over the right ventricle. Six leeches were applied to the cardiac region and speedy relief was obtained. A saline mixture containing 10 minims of the tincture of digitalis and of the tincture of nux vomica, with 3 minims of liquor trinitrini, was now ordered to be given every four hours. Temporary relief to the dyspnœa was experienced, but the patient vomited occasionally—a symptom attributed to the digitalis. On August

6th the patient had a sudden attack of dyspnœa and cardiac failure. He became pale and faint and his pulse was found to be very irregular and weak. After the administration of a hypodermic injection of ether and of brandy internally he rallied, but complained much of pain in the præcordial region and epigastrium. At bedtime an injection of one-eighth of a grain of morphia was given, and the patient slept for a few hours. The next day the following note was made: "Dyspnœa marked. Respiration 32, shallow. Lungs: On the right side dulness reaches in front up to the third rib, and behind nearly to the spine of the scapula. Over the dull area weak breath sounds and diminished vocal fremitus. At the left posterior base slight dulness as high as the angle of the scapula, weak breath sounds, and some creaking. Heart: Œdema of the skin in the cardiac region, extending outwards nearly as far as the nipple on each side. Tenderness on pressure in this situation. Heart's impulse impalpable except at the apex, where it is fairly distinct. Apex beat in the same position as before—*i.e.*, in the sixth intercostal space half an inch external to the nipple line. Cardiac dulness begins at the third rib on the left side, extending outwards and downwards as far as the apex beat. To the right the dulness is continuous with that already described in the examination of the lungs. Heart sounds very feeble; at the apex a cantering rhythm can be recognised; no pericardial friction. Liver much enlarged. Slight ascites. Urine: sp. gr. 1010; contains a trace of albumen. The excretion of urine has fallen during the last three days to 27 ounces." The mixture containing digitalis was now discontinued and 10 minims of tincture of strophanthus were ordered every four hours. It being now evident that the patient had pericardial effusion, instructions were given to perform paracentesis pericardii if his condition should become worse. The same evening the patient became very restless, the respiration was more laboured, and the pulse weaker. Accordingly at 9.30 p.m. paracentesis pericardii was performed by the house physician, Mr. R. M. Smyth, in the absence of the resident medical officer. A small quantity of cocaine was injected under the skin in the cardiac region, and shortly afterwards a trocar and cannula connected with an aspirating syringe were inserted through a small skin incision in the fourth left intercostal space, as close as possible to the edge of the sternum. The trocar hitched on the edge of the sternum,

and after some little difficulty was carefully pushed through the intercostal space until it was felt to be in a cavity. The trocar was then withdrawn and the cannula was now felt to be lifted with each beat of the heart. A quantity of blood-stained serum was syphoned over through the exit tube of the syringe into a porringer. The cannula was gently moved about and the piston drawn out so as to obtain suction. Then fluid of a deeper red colour was obtained, but the cannula soon became blocked, so it was withdrawn and the wound covered with lint soaked in collodion. The patient was relieved at once, the pulse became stronger, and the apex beat of the heart came half an inch lower down than before. Five ounces of fluid were removed. On standing a layer of blood was deposited, the supernatant fluid presenting a clear claret colour.—August 8th: The patient had a good night; he is less restless and in less pain. Respiration 30. The oedema of the chest wall has diminished. Pulse 120, stronger and regular. During the day the pulse-rate varied from 120 to 60, but in the evening it resumed its old rate, 120. The amount of urine passed in the 24 hours following the tapping rose to 55 ounces.—August 9th: Fair night. Pulse 120, irregular. Cardiac dulness reaches up to the third rib. Rhythm cantering. Respiration 32. Urine, sp. gr. 1010. Albumen, one-tenth.—August 10th: The patient seems weaker. Pulse 80, very irregular. Strophanthus had to be discontinued on account of the vomiting it seemed to excite. A hypodermic injection of one-fortieth of a grain of strychnine was given in the morning. At 3.30 p.m. I saw the patient. He was then very dyspnoëic and distressed. The respiration was 30. The pulse was 90, tension being lower than formerly. Intermissions, mostly coinciding with inspiration, occurred every sixth or seventh beat. The physical signs were unchanged. It was determined to resort to paracentesis again, the operation being performed by the resident medical officer, Dr. Stanley Ballance. The patient was placed slightly on the left side in a semi-recumbent position. After freezing the skin with ice and salt a small incision was made in the fifth intercostal space on the left side two inches from the sternum, and the trocar and cannula were then inserted. After slight aspiration had been employed the fluid was allowed to syphon over into a glass vessel, 28 ounces being collected. The fluid had almost the colour of pure blood, and on standing some coagulation occurred. The specific gravity of the fluid was 1020.

During the operation the patient was given a small quantity of brandy-and-water to sip frequently. After the fluid was withdrawn he expressed himself as feeling much easier. His colour improved, the pulse became stronger and less irregular, and the dyspnœa was obviously relieved. The area of cardiac dulness was not perceptibly diminished. On August 11th the patient slept well in the recumbent position, which he had not been able to assume before. The œdema of the chest wall was less. The pulse was 88, stronger, but still irregular. The heart sounds were distinct at the apex, but fainter at the base; impulse was stronger. The quantity of urine excreted during the 24 hours following the operation rose to 97 ounces. For the next month the improvement was maintained, though attacks of dyspnœa recurred from time to time. On August 17th the cantering rhythm of the heart returned, the second of the three sounds now coinciding with the carotid pulse. The pulse became regular and regained its high tension. The ophthalmoscopic appearances underwent no further change. The physical signs in the chest remained the same. After the second tapping the patient was given a mixture containing iron and *nux vomica*. From the second week of September, when I went for my holidays, my colleague, Dr. Habershon, kindly took charge of the case. On September 15th the patient's condition changed for the worse. The pulse became weaker, the dyspnœa increased, and the quantity of urine had fallen in two days from 88 ounces to 48 ounces. The urine now contained one-fourth albumen, the sp. gr. remaining at 1010. As the area of cardiac dulness was thought to have increased slightly it was decided to tap the pericardium again. Paracentesis was performed in the fifth intercostal space on the left side just internal to the situation of the second puncture. No fluid could be obtained. From this time the patient gradually failed, the tension of the pulse fell, the restlessness and respiratory distress became greater, and the quantity of urine steadily declined. Frequent injections of morphia were required to relieve the distressing dyspnœa, but the patient sank and died quietly on September 22nd, six weeks after the second tapping, consciousness being preserved to the last.

Necropsy.—There were recent pleuritic adhesions on both sides; the left pleura was adherent to the pericardium. The pericardial sac was entirely obliterated by adhesions, firm at the base but very soft towards the apex and lower part of the right ventricle. The

pericardium was studded with numerous small hæmorrhages, old and recent. The heart (weight with pericardium, 23 ounces) was greatly enlarged, the left ventricle being mainly affected, and its walls measuring nearly one inch in thickness. The muscle was rather soft. The cavity was moderately dilated. The valves were normal. The lungs were œdematous. There was slight marginal emphysema. There was no trace of tubercle. The larynx was œdematous. The kidneys (weight, $7\frac{1}{2}$ ounces) were much contracted. The capsules were slightly thickened but stripped easily, leaving a granular surface. There were a few small cysts and some yellowish patches in the cortex, which was greatly thinned.

Remarks.—I have ventured to describe this case as a successful one for the reason that marked and immediate relief was obtained from paracentesis, and the improvement was maintained for fully four weeks, the patient's death being the inevitable result of advanced renal disease. *Post-mortem* examination showed that the pericardial cavity had been closed by adhesions. The case was, it will be admitted, a very severe one—granular kidney with uræmic asthma, cardiac dilatation, retinitis, and sanguineous effusion into the pleura and pericardium. The fact that paracentesis pericardii gave unmistakable relief in so desperate a case is the best testimony to the efficacy of this mode of treatment. All who saw the case—and they were many—were convinced that but for the tapping the patient could not have lived many days. The first tapping, performed in the fourth left intercostal space close to the sternum, though it gave temporary relief, only yielded 5 ounces of fluid. Accordingly, on the next occasion, the puncture was made in the fifth space two inches from the sternum. Dieulafoy recommends that the trocar be introduced at no great distance from the sternum, so as to avoid opening the pleura, but there was thought to be little danger of this occurrence in the present case, as there were good reasons for believing that the pleura and pericardium were adherent. The greater success of the second paracentesis is largely to be attributed to the semi-erect position of the patient at the operation facilitating the displacement forward of the exudation, which, as so often happens, had gravitated to the posterior part of the pericardial sac behind the heart. The hæmorrhagic character of the fluid withdrawn from the pericardium as well as from the pleura is noteworthy, as pointing to the severity

of the renal affection. The quantity of fluid removed on the second occasion, 28 ounces, is rather large as compared with the average of cases recorded, though a much larger quantity has been removed in individual cases. It is, however, well to remember that the removal of a much smaller amount—*e.g.*, 4 or 5 ounces—has been productive of excellent results in several cases that have been reported. The good effects of the tapping were manifested by the circulation, respiration, and secretion of urine. The rapid relief of the dyspnœa shows that this symptom was largely due to the mechanical difficulties under which the heart was labouring. Not less remarkable is the rise in the amount of urine that occurred. Thus, in the 24 hours preceding the first operation the quantity was 27 ounces; during the next 24 hours 55 ounces were passed. After the second operation, on August 10th, 97 ounces were measured, and 10 days later the quantity had risen to 137 ounces. No digitalis, strophantus, or other diuretics were given after August 9th, so that the diuresis can only be attributed to the improvement in the circulation brought about by paracentesis. The œdema of the skin in the præcordial region began to diminish as soon as the pericardial pressure was relieved, but it was some days before it had completely disappeared. The diagnosis of the pericardial effusion presented no difficulty. Although the pulsus paradoxus was not present in its typical form, it was noted on the day of the second tapping that the intermissions of the pulse mostly coincided with inspiration. This condition could no longer be observed after the fluid had been removed, and it did not return. The repeated hæmoptysis that occurred early in the history of the case is worthy of note in connection with the hæmorrhagic character of the effusions into the serous cavities, and with the fact that the necropsy revealed no disease of the lungs with the exception of slight marginal emphysema. I have met with several cases of pulmonary hæmorrhage in middle-aged and elderly people who were free from any sign of cardiac or pulmonary disease beyond slight emphysema, but in whom the existence of granular kidney in a latent form was highly probable. Referring to these cases in the discussion that took place at the Medical Society of London a few years ago on the late Sir Andrew Clark's paper on the Non-tuberculous and Non-cardiac Hæmoptysis of Elderly Persons, I ventured to attribute the hæmorrhage to a rise of pressure in the

pulmonary circulation secondary to the high tension in the aortic system. When, as is usually the case in such circumstances, some degree of emphysema and general arterial degeneration coexist, we must recognise the presence of conditions favourable to the production of pulmonary hæmorrhage. I still regard this explanation as simpler and more probable than Sir Andrew Clark's assumption of a specific lesion of the pulmonary arterioles and capillaries dependent on "the arthritic diathesis." In a valuable paper by Dr. Samuel West on a case of Purulent Pericarditis treated by Paracentesis and by Free Incision, with Recovery,* statistics of paracentesis pericardii are included, and many interesting points are brought out. Since this paper was published other cases have been recorded; but as Dr. West's conclusions still seem to comprise all the essential points, I will now quote them in conclusion: (1) Paracentesis pericardii is not only justifiable, but an operation which may be safely undertaken with ordinary precautions; (2) the most suitable place for puncture is, in ordinary cases, in the fifth left intercostal space one inch from the edge of the sternum; but if the pleura be adherent the puncture may be made safely much further out, and even in the sixth space; (3) the instrument employed should be a trocar and cannula, with or without aspiration; and (4) the operation may be performed with advantage, not only in the pericardial effusions of rheumatic or primary origin, but also in those which occur in the later stages of general dropsy, if it should appear that the fluid in the pericardium is adding to the difficulties under which the heart is placed.

Dr. SANSOM had no hesitation in affirming that the operation was the best treatment under the circumstances, and had afforded immediate relief, and prolonged life to a considerable extent. In this case there was a history of lead poisoning which gave a reasonable probability of there being granular kidney, with hypertrophy of the heart. In pericarditis in combination with renal disease he had never, until two years ago, seen a satisfactory recovery, but he had lately seen two cases of this kind. Such traces of old retinal hæmorrhage made the prognosis grave, and the duration of life was sure to be short. The author's case was partly a true pericarditis and partly a hydrops pericardii. However much one might recommend the operation under such circumstances, it would, he thought, hardly be justifiable to perform it except in a small minority of cases of pericarditis. In rheumatic pericarditis, although

* 'Transactions of the Royal Medical and Chirurgical Society,' vol. xlvi, 1883.

the operation had been undertaken with success in a few cases, it must not be forgotten that there were many difficulties. The effusion was a small part of the process. There was what the late Dr. Sturges called pan-carditis—an inflammation of the whole heart, with swelling of its substance, followed by pronounced pericardial adhesions. The treatment of the fluid, therefore, was only a small part.

Mr. MARMADUKE SHEILD entirely dissented from Dr. West's statement, quoted by the author, that it was a satisfactory and easy operation. This was not the case, because the diagnosis of pericardial effusion was uncertain; for in the author's own case, though the signs of pericardial effusion were present, on the last attempt to tap, no fluid came, and so they might take it that no fluid was present. The case was one of adherent pericardium and enlarged heart. He had seen this error of diagnosis made over and over again; indeed he gathered that it was a matter of the greatest difficulty and uncertainty to distinguish between the two conditions. If there were not a large amount of fluid present, and if the cannula and trocar were passed through the pericardium with "a jump" or a sudden movement made by the patient, a vein on the surface of the heart might be wounded, and the patient gradually succumb to an effusion of blood into the pericardium. It was best to make a small incision through the skin close to the sternum, and to pass the trocar gradually into the pericardium without the "jump" that was unavoidable when it had to be thrust through the skin. Thus it was important to direct the trocar obliquely towards the sternum. If that were done the operation was comparatively safe. The question of an anæsthetic was a difficult one. The author's patient was an adult; but in nervous children their struggles were not only trying, but added considerably to the risks.

Dr. W. CARR recalled a case of a child who died of pericarditis with other complications. During life there had been great extension of the pericardial dulness, and the advisability of tapping was discussed and decided in the negative. *Post-mortem* he found the pericardium greatly enlarged in all directions. It contained pus and lymph, the pus being at the back of the pericardium. The heart itself was anchored by firm adhesions to the front of the pericardial sac, so that if any attempt had been made to do paracentesis the needle must necessarily have gone into the ventricular wall. There was no sign, during life, to indicate the presence of these adhesions.

Dr. EWART agreed with what the author had stated, and also with the conclusions which he had quoted from Dr. West's paper. He had had several cases of paracentesis for pericarditis without any bad results, but the most satisfactory case was one in which 20 ounces of very bloody fluid were removed from the pericardium of a man aged about 40, who was suffering from valvular disease with extreme dropsy, and was in imminent peril of his life. The relief was complete, though recovery was slow, the œdema lingering for a time; but the man was subsequently enabled to resume his occupation as a butler. He had had the operation performed on patients suffering from severe rheumatic pericarditis, and with complications which made their safety depend on the immediate relief of intra-thoracic pressure. In one case there was effusion into the three cavities of the chest and all three cavities were emptied of fluid, two of them at one operation, the patient recovering completely. Pneumothorax, which had been set up by the second operation, cleared up in less than two days, and gave rise to no bad symptom. To pass on to the

subject of the adhesions which were so apt to form, especially in purulent cases, and to the difficulties which occur in connection therewith, he remembered the sad case of a boy in whom what appeared to be an ordinary rheumatic pericarditis passed into the purulent form. He diagnosed the affection early, and ultimately had aspiration performed, but the operation did not give relief. He ascribed this failure to the imperfect method which was still in vogue for the relief of purulent pericarditis. He advocated a large incision. In the case above referred to a fine cannula was introduced and a small quantity of pus withdrawn. After a few days, the symptoms persisting, another surgeon made a very small opening, but ultimately the child died. They found a very large quantity of pus in the interior of the pericardial sac, and a good deal of spongy fibrin. The needle had gone into this fibrin without touching the body of the fluid. He felt very strongly that to relieve purulent pericarditis they ought to lay the sac freely open, either by removing a piece of cartilage or by a long intercostal incision. Thrusting a pointed instrument into the pericardium did not seem to be the best form of surgical treatment, nor one likely to affect the end in view in all cases. In another fatal case of purulent pericarditis with adhesions to the anterior part of the chest, the patient was not relieved, because they missed the fluid for the want of a sufficiently large opening. This indication which he ventured to regard as paramount in purulent cases, may ultimately be extended to cases of simple effusion with adhesions. With regard to physical diagnosis they might yet hope to secure some trustworthy method of diagnosing pericardial fluid.

Dr. PERCY KIDD, in reply, quite agreed that paracentesis pericardii was not an operation to be lightly undertaken; in fact he had for years been on the look-out for a case in which it would be justifiable. He had a rheumatic case in a man of 40 some months ago, whose condition was such that for several days he, Dr. Kidd, thought to recommend paracentesis. The day he made up his mind to do so the patient was rather better, so he did not carry out his intention. From that time the patient made a good recovery. The prognosis of course varied very much according to the cause of the pericarditis. In his case the prognosis was bad from the first. Physicians all agreed as to the difficulties of a reliable diagnosis of pericardial effusion and adherent pericardium. He might add that in several cases the right ventricle had been punctured without any harm, but that was not the same as wounding a large vein. He would certainly make a skin incision. As to the difficulties of recognising a purulent effusion, he could corroborate what had fallen from Drs. Carr and W. Ewart. If pus was suspected, he would certainly rather risk an incision than a puncture, unless it were a very large effusion in which tapping might be indicated as a preliminary.

THE TREATMENT OF EMPYEMATA IN CHILDREN, BASED ON AN ANALYSIS OF EIGHTY-SIX CASES.

By EDMUND CAUTLEY, M.D. Cantab.

IT may, perhaps, seem out of place for a physician to write a paper on methods of treatment which are almost always essentially surgical. I do so for two reasons. In the first place, the patient requiring treatment comes primarily under the care of a physician who makes the diagnosis and, if he deem it necessary, calls in a surgeon to perform the requisite operation. Usually the physician, often a man of little surgical knowledge and not abreast of the advances in surgery, decides upon the nature of the operation. In the second place, although the different modes of treatment have been before the profession for years, Celsus, I believe, having been the first man known to have performed rib resection, there is no universal consensus of opinion as to which is the safest and the best. Dogmatic opinions are freely expressed on one side or the other, more commonly from the lips of physicians than of surgeons, and supported by a varying amount of clinical experience and recorded cases. Thus, Solis-Cohen, author of the article on the Surgery of the Air Passages and Lungs in 'Ashhurst's International Encyclopædia of Surgery,' states, when writing of pleural effusions, that "*the absorption of pus is in practice a myth.*" Treatment by aspiration is praised or abused in terms almost as strong. The late Dr. Sturges (1) in a letter to 'The Lancet' in 1894, stated that at one time he held that if a free vent for pus could be secured and maintained, the removal of rib is unnecessary; he had, however, altered his views, and believed that in almost all cases it is necessary, and that the small mortality from empyema in childhood, whether single or double, is due to improved treatment in that respect. Batten (2), in support of this statement, records a series of cases treated at the Hospital for Sick Children, Great Ormond Street. Sutherland (3) goes even a step further, and writes that "the usual operative treatment is to open the abscess after resection of a rib, to explore the cavity with the finger, and, *after washing it*

out, to insert a drainage tube. This may be taken as representing the accepted surgical procedure of the present day."

On the other hand, Wardrop Griffith (4) and Wightman (5), from statistics of cases treated in hospital, and Morrison (6), from statistics of cases treated in private practice, maintain that as a general rule resection of rib is unnecessary, and that almost all cases of empyema in children can be cured by simple incision and drainage.

The following series consists chiefly of records of patients, under 12 years of age, treated for empyema in St. Bartholomew's Hospital during the years 1883 to 1893. I am deeply indebted to the kindness of the physicians, under whose care the patients were, for permission to make use of the notes. Dr. Ewart has also kindly allowed me to make use of the notes of a few cases which have been under his care at the Belgrave Hospital for Children. A few of the patients have been under my own treatment at the latter hospital.

I propose to place before you an analysis of these cases, with especial reference to the treatment, and to compare it with the analyses of the results obtained and recorded by other observers.

CASES IN WHICH NO

| No. | Sex. | Age. | Side affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|-----------------|----------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------|
| 1 | M. | 2 $\frac{3}{4}$ | R. | Sequel of measles and bronchitis. 8 weeks' illness. | Exploration twice. Interval of one month. | Pus found each time. |
| 2 | M. | 1 $\frac{2}{8}$ | L. | Measles | Exploration... .. | Nothing found |
| 3 | M. | 6 | L. | Indefinite history of illness for a year. Fall six weeks ago. | Incision into a superficial abscess about level of 6th rib, in anterior axillary line. | Small amount of shreddy pus. |
| 4 | M. | 8 | R. | Exposure to cold two months previously. | Exploration twice; on successive days. | Pus found each time. |

CASES TREATED

| | | | | | | |
|----|----|------------------|----|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 5 | M. | 1 $\frac{7}{12}$ | R. | Gradual onset for one month. | Aspiration | Pus, 3 $\frac{1}{2}$ ozs. |
| 6 | M. | 1 $\frac{3}{8}$ | L. | Gradual onset for five weeks. | Aspiration | 27 ozs. of chocolate - coloured purulent fluid. Thick curdy pus |
| 7 | M. | 2 $\frac{7}{12}$ | R. | Measles a month before. | Exploration three weeks later. Admitted, Nov. 7. ... Aspiration, Nov. 16 ... " " 25 ... " " 30 ... | ... Pus, 3 ii Pus, 3 i ss. Pus, 3 ss. |
| 8 | F. | 4 | R. | Measles one month ago. Pneumonia. | Exploration, Dec. 6 ... " Jan. 17 ... Aspiration, Jan. 19 ... " 30 ... | Nil Pus 6 ozs. 3 ozs. |
| 9 | M. | 4 | L. | Sequel of whooping cough. Pneumonia (?) a month ago. | Aspiration three weeks after admission. | 5 $\frac{1}{2}$ ozs. of pus |
| 10 | M. | 4 $\frac{3}{4}$ | L. | Gradual onset nine weeks. | Aspiration, Aug. 18 ... " Sept. 1 ... | 18 ozs. of thick pus. 5 ozs. |
| 11 | M. | 4 | L. | Admitted on May 12 with pneumonia. | Exploration, June 11 ... Aspiration, June 26 ... | Pus, a few drops Pus, 3 ii-iii |
| 12 | F. | 5 | L. | Admitted on the fourth day of pneumonia. | Exploration, Aug. 19 ... Aspiration, Aug. 19 ... " 23 ... " Oct. 2... ... | Pus Nil Pus, 2 $\frac{1}{2}$ ozs. Pus |
| 13 | M. | 5 | R. | Six weeks' gradual onset. | Aspiration. Irrigation with water. Injection of tr. iodi $\frac{7}{8}$ ss. | Pus, 3 ozs. |
| 14 | M. | 6 $\frac{3}{4}$ | R. | Ailing two months Pneumonia (?) at onset. | Aspiration | Pus, 2 ozs. |
| 15 | M. | 7 | L. | Admitted on fourth day of apical pneumonia. | Exploration Aspiration | Pus Pus, 3 ii |
| 16 | F. | 11 | R. | Five weeks' illness. Probably pneumonia at first. | Exploration Aspiration | Pus Pus, 1 $\frac{1}{2}$ ozs. |

OPERATION WAS PERFORMED.

| Result. | Duration of treatment after operation. | REMARKS. |
|---------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | 17 days after the second exploration. | Child gained weight. Subnormal temperature for 20 days before he was discharged. Contracted side and droop of shoulder, left. Note impaired at the base. |
| Death | Under treatment one month. | The probable cause was an injury to the rib, due to a fall five weeks before admission. Secondary pyæmia. Hectic temperature throughout. <i>Post-mortem.</i> —Caries of the 7th rib and head of humerus on the right side, connected with abscesses which were opened during life. Fœtid abscess in R. iliacus muscle. Consolidation of left lung and 5 or 6 ounces of pus in the pleural cavity. |
| Cure | 22 days after the last pus was coughed up. | Small amount of pus coughed up; about 5½ ounces in seven days. No connection found between the superficial abscess and the pleura. Subsequent contracture of the side. A case of empyema discharging through the lung. |
| Cure | 32 days after coughing up ½ oz. of pus. | An empyema discharging partially through the lung and partially re-absorbed. Gradual recovery with much deformity. |

BY ASPIRATION.

| | | |
|------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | 42 days | The fluid re-collected and was then absorbed. Partial falling-in of the side. |
| Cure | 12 weeks after exploration. | The fluid re-collected after the aspiration, and was then slowly absorbed. Marked flattening of the chest resulted. |
| Cure | 20 days after the last aspiration. | No record as to condition of the chest when patient was discharged. |
| Cure | 22 days after the last aspiration. | Pneumonia on admission. Effusion small and localised in the axilla. No re-collection after the second aspiration. |
| Cure | 39 days | No re-collection. Gradual clearing up. |
| Cure | 42 days after the second aspiration | Positive pressure in the pleura before the first tapping. Much subsequent contraction of the side. |
| Cure | 14 days | Temperature hectic before tapping; came down on tapping and remained down. No subsequent re-collection. |
| Cure | 34 days after the last aspiration. | Hectic temperature from September 5 to 16, and again from October 7 to 16. The empyema pointed on October 12 near the angle of the scapula, and ruptured on October 16. The sinus closed on the 12th day. |
| Cure | 28 days | The temperature rose to 102° on the morning after the injection, but came down that night and did not go up again. Uniform progress. Still dulness when discharged. |
| Cure | 39 days | Gradual clearing up, but still dull at the base when discharged. Good air entry. |
| Cure | 55 days | Slow recovery. Discharged with a contracted side, and deficient air entry at the base. |
| Cure | 12 weeks | Partial re-collection and subsequent absorption. Perhaps some of the pus was expectorated. Considerable deformity. |

CASES TREATED BY

| No. | Sex. | Age. | Side affected. | Cause assigned. | Mode of Treatment. | Nature and amount of fluid. |
|-----|------|-------------------|----------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 17 | F. | 1 | R. | Broncho-pneumonia ... | Exploration ... Incision made in sixth space, mid-axillary line, three weeks after admission. | Pus Pus, 6 ozs. |
| 18 | M. | 1 $\frac{3}{4}$ | L. | Gradual onset for three weeks. | Exploration, Jan. 4 ... " Feb. 1 ... Incision in seventh space, posterior axillary line. | <i>Nil</i> Pus Pus, 3 ozs., sweet |
| 19 | F. | 1 $\frac{1}{2}$ | R. | Whooping cough and bronchitis. Ill three months. | Exploration, June 13 ... Incision, Aug. 5 | Pus |
| 20 | F. | 1 $\frac{11}{12}$ | L. | Gradual onset for three months. | Incision in sixth space in anterior axillary line. | Pus, 10 ozs., thick and sweet |
| 21 | F. | 2 $\frac{1}{2}$ | R. | Ill three weeks ... | Aspiration, July 13 ... Incision, July 18, sixth space, mid-axillary line. | Pus, 8 ozs. Pus, 6 ozs. |
| 22 | F. | 2 $\frac{1}{2}$ | R. | Admitted with right apical pneumonia | Incision 19 days after. Irrigation at the time of operation, and daily after it, with solution of bors-glyceride. | Pus, 12 ozs. |
| 23 | M. | 2 $\frac{1}{2}$ | L. | No definite history ... | Opening and counter-opening made, and a tube passed through. | Pus, 1 $\frac{1}{2}$ pints, thick and creamy |
| 24 | F. | 2 $\frac{3}{4}$ | L. | Gradual onset for a month. | Exploration, March 20 ... Aspiration, " ... Incision posteriorly, April 3. | Pus Pus, 20 ozs. Pus, 18 ozs. |
| 25 | F. | 3 | L. | | Incision and irrigation ... | Not much pus |
| 26 | F. | 3 | R. | Admitted on sixth day of right apical pneumonia, April 26. | Exploration, May 6 ... Aspiration, May 6 ... " " 16 ... " " 29 ... Incision, June 6 ... | Pus Pus, 1 $\frac{1}{2}$ ozs. <i>Nil</i> Pus, 4 $\frac{1}{2}$ ozs. Pus, 3 ozs. |
| 27 | M. | 3 $\frac{1}{4}$ | L. | Gradual onset for a month. | Exploration ... Incision ... | Pus, nearly $\frac{1}{2}$ pint, thick |
| 28 | F. | 3 $\frac{1}{2}$ | L. | Ailing two years. Bulging of chest noticed for three months. | Aspiration, Aug. 2... Incision, Aug. 9 ... | Pus, 13 ozs. Pus, 12 ozs. |

INCISION AND DRAINAGE.

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | | | REMARKS. |
|---------|---------------------|---------------|----------------------------------------|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | 16th day | 18th day | 40 days | ... | ... | Uninterrupted recovery. |
| Death | ... | ... | 12 days | ... | ... | Died of general bronchitis, with broncho-pneumonia of the left lung. The discharge remained sweet. No <i>post-mortem</i> made. |
| Cure | ... | ... | 46 days | ... | ... | No record as to the removal of the tube or the healing of the wound. |
| Cure | 14th day | 17th day | 22 days | ... | ... | Positive pressure at the time of the operation. The lung immediately re-expanded. The tube might have been removed earlier; it was 4 inches long at first. |
| Cure | 34th day | 37th day | 7 weeks | ... | ... | The tube might have been removed much earlier. Discharge noted as serous and scanty on August 11. |
| Death | ... | ... | 16 days | ... | ... | A week after the operation, between 1 and 2 ounces of foetid pus were discharged. The temperature did not fall after the operation, and remained hectic to the end. No <i>post-mortem</i> examination. |
| Cure | ... | 4 months | 4½ months | ... | ... | Pointing at the time of admission. The wound might probably have been allowed to close much earlier. A month after the operation it was noted that there was very little discharge. Considerable contraction of the side. |
| Cure | 24th day | 12 weeks | 13 weeks | ... | ... | The fluid re-collected rapidly after the aspiration, and there was positive pressure at the time of the incision. Five days after, the discharge was scanty and serous. |
| Cure | .. | ... | 5 weeks | ... | ... | Temperature was markedly hectic after the operation, and even when discharged. Probable phthisis. |
| Cure | 37th day | ... | 6 weeks | ... | ... | Much albumen noted in the urine at the time of the pneumonia. |
| Cure | In 24 days or less. | 38th day | 7 weeks | ... | .. | It was noted on the fourth day after the operation that the discharge was very scanty. |
| Cure | ... | 5½ months | 5½ months | ... | ... | On August 9, the empyema pointed below the nipple. Ribs were too close for a drainage tube. Two days later a stiff rubber catheter was put in, and a few days after a silver tracheotomy tube was inserted, and the cavity irrigated; the pus had become foetid. Temperature normal after October 7. |

CASES TREATED BY INCISION

| No. | Sex. | Age. | Side Affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|------|----------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 29 | F. | 3½ | L. | Ailing for 11 weeks ... | Exploration, April 22 ... Aspiration, April 22 ... Incision, June 13 ... Counter-opening, July 8 | Pus Pus Pus, 9 ozs. |
| 30 | M. | 3¾ | R. | Acute onset five weeks before admission, on October 13. | Aspiration and incision on October 19. | Pus, 8 ozs. |
| 31 | M. | 4 | R. | Acute empyema or pneumonia, for which he was admitted. | Exploration, Sept. 1 ... Aspiration, „ 6 ... „ „ 9 ... Incision, Sept. 13 ... | Sero-pus Pus, 9½ ozs. Pus, 5 ozs. Pus, 4 ozs. |
| 32 | M. | 4 | L. | Fall on head three weeks before. | Exploration and incision | Pus, ½ pint |
| 33 | F. | 4 | L. | Fall on head seven weeks before. | Aspiration and irrigation with Condyl's fluid, August 23. Aspiration and irrigation with carbolic lotion, Sept. 1. Incision, Sept. 13. Irrigation with carbolic lotion, Sept. 14. | Pus, 7 ozs. Pus, 9 ozs. Pus, 10 ozs. |
| 34 | F. | 4 | L. | Whooping cough and bronchitis two months before. | Aspiration, July 26 ... „ August 9 ... Incision, Sept. 30 ... | Pus, 26 ozs. Pus, 9 ozs. Pus, (?) amount |
| 35 | M. | 4 | R. | Sequel of measles and bronchitis two months ago. | Incision | Pus, 18 ozs., sweet |
| 36 | M. | 4½ | R. | Indefinite onset. Ailing three weeks. | Aspiration, April 26 ... „ May 9 ... „ May 17 ... Incision, May 25, and counter-opening. | Pus, 3½ ozs. Pus, 17 ozs. Rather foetid pus, 6 ozs. Slight smell of pus |
| 37 | M. | 4½ | L. | Measles two weeks before. | Aspiration, May 27 ... „ May 29 ... Incision, June 4 ... Re-opened, June 16 ... | Pus, 4½ ozs. Pus, 10 ozs. Pus, 14 ozs. Pus, 3 ozs. |
| 38 | F. | 5 | L. | Pneumonia five weeks ago. | Aspiration, April 17 ... Incision, May 18 ... | Pus, 10 ozs. Pus, 8 ozs. |

AND DRAINAGE—*continued.*

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | REMARKS. |
|---------|---------------------|------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Death | ... | ... | 33 days | The empyema pointed in the mid-axillary line before being opened. The first aspiration was before admission. Whooping cough developed the day after admission. Hectic temperature after May 6. <i>Post-mortem.</i> —General tuberculosis. A little pus in left pleural cavity. Partial collapse of lung. |
| Cure | 7th day | 60 days | 68 days | The tube had to be re-inserted on the forty-fifth day on account of a small local collection. Much broncho-pneumonia. Much contraction of the side. |
| Cure | 9 weeks | A few days later | 10 weeks | Tube kept in nine weeks, although it was frequently noted that there was no discharge. An attack of acute nephritis from October 2, onward. No albumen in the urine when patient was discharged. |
| Cure | 4 weeks | ... | 7 weeks | |
| Death | ... | ... | 32 days | Temperature remained down for five days after the operation, and then went up suddenly. Cause of death, erysipelas. No <i>post-mortem</i> . |
| Death | ... | ... | 36 days | The operation was performed under Listerian precautions. Two weeks later the discharge was offensive. Two weeks later the cavity was irrigated with carbolic lotion, 1 in 80. On the fourth day of the irrigation, immediately after the injection of the first syringeful, the patient died of syncope. <i>Post-mortem.</i> — Left lung airless but not diseased, bound down by greatly thickened pleura. Cavity contained 2 ounces of thick pus. Bronchial glands caseous Foramen ovale open. |
| Death | ... | ... | 5 days | <i>Post-mortem.</i> —Localised empyema. Broncho-pneumonia of right upper lobe and collapse of lower lobe. Purulent meningitis of brain and spinal cord. |
| Cure | 41st day | ... | 11 weeks | Tube re-introduced the day after it was removed, and the cavity irrigated. Still slight discharge at the end of eight weeks. |
| Cure | 7th day 22nd day | 22 days after the second operation | 7 weeks | The tube was removed too soon, and there was a small re-accumulation. |
| Cure | At least 6 weeks | ... | 7 weeks | The empyema pointed at the site of the aspiration puncture before it was opened. |

CASES TREATED BY INCISION

| No. | Sex. | Age. | Side affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|-----------------|----------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 39 | M. | 5 | L. | Admitted on May 29 for left apical pneumonia. | Exploration, June 17 ... Aspiration, June 19 ... Incision, June 27 ... | Pus Pus, 4 ozs. Pus, 12 ozs. |
| 40 | F. | 6 | R. | Ailing two weeks. | Exploration, May 28 ... " June 2 ... Incision, June 2 ... | <i>Nil</i> Thick creamy pus Pus, $\frac{1}{2}$ oz. |
| 41 | M. | 6 | L. | " Inflammation of lungs " two months ago. | Incision, Oct. 21 ... Counter-opening, Nov. 12 | Pus, 26 ozs. |
| 42 | M. | 6 | R. | Gradual onset for eight weeks. | Incision | Pus, 15 ozs. |
| 43 | M. | 6 $\frac{1}{2}$ | L. | Admitted with pneumonia. | Incision | Pus, 6 ozs. |
| 44 | F. | 7 | R. | Gradual onset for three months. | Exploration, May 24 ... Opening and counter-opening on May 29. | Thick pus Several ozs. |
| 45 | M. | 7 | R. | Admitted with pneumonia on August 4. | Exploration, Aug. 23 ... Aspiration, Aug. 30 ... Incision, Sept. 12 ... | Pus Pus, 1 oz. Pus, 7 ozs. |
| 46 | F. | 7 $\frac{1}{2}$ | L. | Measles two months before. | Incision, July 31 ... Re-opened and counter-opening on Dec. 29. | Pus, 38 ozs. ... |
| 47 | F. | 8 | L. | Admitted with pneumonia on June 12. | Aspiration, June 22 ... Incision, June 27 ... | Pus, 7 ozs. Pus, 10 ozs. |
| 48 | F. | 9 | R. | Admitted with pneumonia on Aug. 5. | Aspiration, Aug. 18 ... " Aug. 25 ... Incision, Sept. 4. | Pus, 8 ozs. Pus, 1 $\frac{1}{2}$ ozs. |
| 49 | M. | 10 | L. | Pleurisy (?) three weeks ago. | Aspiration, Jan. 17 ... Exploration, Mar. 21 ... " April 21 ... Incision, April 21 ... | Serum, 10 ozs. <i>Nil</i> Pus Pus, 12 ozs. |
| 50 | F. | 11 | L. | Ill five weeks broncho-pneumonia. | Opening and counter-opening. Tube passed through. | Pus, 1 $\frac{1}{2}$ pints |
| 51 | F. | 11 | L. | Pneumonia five weeks before. | Exploration, July 13 ... " July 26 ... Incision, July 26 ... | Serum Pus Pus, 8 ozs. |

AND DRAINAGE—*continued.*

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | REMARKS. |
|----------------|---------------------------|---------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | ... | ... | 4 months ... | It was noted on July 1 and again on October 3 that there was very little discharge. |
| Cure | 32nd day | 44th day | 9 weeks ... | Operation done under Listerian precautions. Wound only dressed four times. Tube pushed out by granulations. |
| Cure | ... | ... | 6 weeks ... | The empyema pointed in the sixth space in the mid-axillary line. Subsequent contraction of chest. |
| Cure | 51st day | 55th day | 58 days ... | The empyema discharged partially through the lung on the night of admission. Irregular temperature for a month after operation. |
| Cure | 42nd day | 44th day | 50 days ... | The empyema was localised at the apex, and the incision was made in the second interspace. |
| Cure | 22nd day | 30th day | 38 days ... | The tube was removed from the upper opening on the sixth day. Good re-expansion of the lung. |
| Cure | ... | ... | 24 days ... | The temperature fell after the aspiration. The empyema was localised and pointed before being opened. |
| Cure imperfect | Tube in 37 days + 44 days | 3 days later | 3½ months | Pointing above left mamma on admission. Discharged cured to a convalescent home. Returned in a month with a small re-accumulation. Eventually sent out with a sinus still left. |
| ... | ? | ? | 2 months | |
| Cure | 15th day | 18th day | 3 weeks ... | Dressed every third day. Discharge quite thin, and almost ceased in two days. |
| Cure | 27th day | 29th day | 40 days .. | September 7, discharge thin and scanty. September 18, discharge tenacious and purulent. |
| Cure | 32nd day | ... | 8 weeks ... | Side contracted before the operation. Sinus when discharged. Re-admitted and thoracoplasty performed. Sinus then healed. |
| Cure | 3rd day 15th day | 54th day | 58 days ... | Positive pressure at the time of operation. The tube had to be re-inserted on account of an accumulation of pus, and remained in another three weeks. The wound healed three days after the tube was finally removed. |
| Death | ... | ... | 10 days ... | Between three and five days after the operation she had three fits. On the fifth day pericarditis was diagnosed, and she was unconscious. Death from exhaustion. Temp. 105° previously. <i>Post-mortem.</i> —A fairly extensive localised empyema shut off by adhesions on all sides. Lung airless, and traversed by numerous fibrous bands. Recent pericarditis, not purulent. Nephritis. |

CASES TREATED BY

| No. | Sex. | Age. | Side affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|------------------|----------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| 52 | M. | 1 | R. | Measles and broncho-pneumonia five weeks before. | Admitted, July 10... Exploration, July 21 Resection, July 22... | ... Pus Pus, 7 ozs., not quite sweet |
| 53 | M. | 1 | R. | Measles... .. | Exploration... .. Resection | Greenish-brown fluid containing pus Pus, 5 ozs. |
| 54 | F. | 1 $\frac{1}{2}$ | R. | General bronchitis ... | Exploration, Aug. 20 ... Resection, Aug. 21 ... Irrigation with weak iodine solution from Sept. 1. | Pus Very little pus Discharge had a sour smell |
| 55 | F. | 1 $\frac{1}{3}$ | R. | Acute onset 12 days ago. | Exploration, May 24 ... Resection, May 25... .. | Pus Pus, 8 ozs. |
| 56 | F. | 1 $\frac{7}{12}$ | L. | Gradual onset for nine weeks. | Aspiration, Nov. 21 ... Resection, Nov. 23... .. | Pus, 3 iii, thick and curdy Pus, 1 $\frac{1}{2}$ ozs |
| 57 | F. | 2 | R. | Admitted on May 25 with pneumonia. | Exploration, June 13 ... Resection, June 14 ... Iodine baths, July 20 | Pus Pus, 8 ozs. |
| 58 | M. | 2 | L. | Gradual onset for two months. | Exploration... .. Resection | Pus Pus, 4 ozs. |
| 59 | F. | 2 $\frac{1}{3}$ | R. | Broncho - pneumonia for six weeks. | Exploration, July 7 ... Resection, July 8 | Pus Pus, 3 ozs. |
| 60 | M. | 2 $\frac{1}{3}$ | R. | Sudden onset three weeks ago. | Aspiration, June 19 ... Resection, June 19 | Pus, 5 ozs. Pus, 10 ozs. |
| 61 | M. | 2 $\frac{7}{12}$ | R. | Onset three weeks ago | Resection | Old blood clot, and 16 ozs. of pus |
| 62 | M. | 2 $\frac{7}{12}$ | L. | Bronchitis five weeks before admission. | Exploration... .. Resection | Pus Pus, 1 $\frac{1}{2}$ ozs. |

RESECTION AND DRAINAGE.

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | REMARKS. |
|---------|---------------|---------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | 20th day | 29th day | 9 weeks ... | The discharge was serous on the sixth day after the operation. Much trouble from diarrhœa. |
| Death | ... | ... | 3rd day ... | Child had perforating ulcer of left eye; ulceration of right cornea: ulcer on scalp, and sore on right index finger. <i>Post-mortem.</i> —Both lungs covered with thick lymph, and adherent throughout, except for the cavity on the right side. Purulent mediastinitis. |
| Death | ... | ... | 31st day ... | Temperature came down after the irrigation, but went up again on September 17. Squint developed. Died on September 20. Irrigation induced cough and vomiting. <i>Post-mortem.</i> —Much creamy pus in the cavity. Lung airless, and coated with thick lymph. A small hole in the lung opposite the incision, opening into a smooth-walled cavity, 1 by $\frac{1}{4}$ inch. Right lung normal. |
| Death | ... | ... | 4th day ... | Temperature rose steadily on the third day. <i>Post-mortem.</i> —Œdema of left lung and upper lobe of right lung. Consolidation of right, middle, and lower lobes, with numerous anæmic homogeneous patches, probably necrotic. Fair-sized cavity lined with lymph, and containing a little sero-pus. |
| Death | ... | ... | 2nd day ... | No rise of temperature. <i>Post-mortem.</i> —Acute pericarditis. Slight lobular pneumonia of right lung and left upper lobe. A little soft lymph in the pleural cavity. |
| Death | ... | ... | 39th day ... | The temperature remained somewhat hectic after the operation; came down to normal for 17 days before death, but rose the day before. Diarrhœa on the last day. <i>Post-mortem.</i> —Right lung adherent, much collapsed and carnified. No pus in the cavity. Bronchitis of left lung, and partial collapse of the base. |
| Cure | 89th day | ... | 97 days ... | Not much discharge on the fourth day after operation; subsequently it varied much in character and amount. The tube was exchanged for pewter wire at times. |
| Cure | 18th day | 32nd day | 54 days | |
| Cure | ... | 25th day | 31 days ... | The tube was 1 $\frac{1}{2}$ inches long on the thirteenth day after operation. No further record. |
| Cure | ... | 16th day | 44 days | |
| Cure | 15th day | 25th day | 27 days ... | Probably pneumonia of left lower lobe on admission. |

CASES TREATED BY RESECTION

| No. | Sex. | Age. | Side affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|------|----------------|-------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------|
| 63 | M. | 3 | R. | Measles. Pain in side three weeks before. | Exploration... Resection. Irrigation with carbolic lotion. | Much thick and curdy pus |
| 64 | F. | 3½ | L. | Pneumonia ... | Resection ... | Pus, 5 ozs. |
| 65 | F. | 4 | R. | Acute onset five weeks before. | Aspiration, Aug. 22 Resection, Aug. 26 | Pus, 14 ozs. Pus, 12 ozs. |
| 66 | M. | 4 | R. | Measles'... .. | Resection ... | Pus, 2 ozs. |
| 67 | F. | 4 | L. | Ill five weeks ... | Exploration... Resection. | Pus, 14 ozs. thick |
| 68 | F. | 4 | L. | Ill three weeks ... | Aspiration, June 29 Resection, June 30 | Pus, 5 ozs. Pus, 16 ozs. |
| 69 | F. | 4 | L. | Sudden onset ... | Exploration, June 10 Resection, June 11 | Pus Pus, 9 ozs. |
| 70 | M. | 4 | L. | Admitted with pneumonia. | Exploration, March 7 Resection, March 10 Irrigation with weak iodine solution. | Pus Pus, 9 ozs. |
| 71 | F. | 4½ | R. | Acute onset three weeks ago. | Resection, Aug. 12... | ... |
| 72 | M. | 5 | R. | Cough three months, wasting two months. | Resection ... | Pus, 7 ozs. |
| 73 | M. | 5 | L. | Pneumonia seven weeks before admission. | Aspiration, Sept. 3... Resection, Sept. 15 | Pus, 1½ pints Pus, 1½ pints |
| 74 | F. | 5 | L. | Enteric fever five months ago. | Aspiration, Oct. 2 ... Resection, Oct. 3 ... | Pus, 14½ ozs. Pus, 6 ozs. |
| 75 | F. | 6 | R. | Ailing for three weeks | Aspiration, Nov. 26 " Nov. 29 Resection, Dec. 9 ... Irrigation with iodine solution. | Pus, 20 ozs. Pus, 13 ozs. Pus, 2 pints |
| 76 | F. | 6 | R. | Whooping cough and broncho-pneumonia. | Exploration ... Resection. | Pus, 7 ozs. |
| 77 | F. | 7 | L. | Acute onset ten days ago. | Exploration, May 20 Aspiration, May 21 Resection, May 23... | Sero-pus Nil Thin pus, 3 ozs. |
| 78 | M. | 8 | L. | Sudden pain in the side six weeks ago. | Exploration, June 11 Resection, June 13 | Pus Pus, 24 ozs. |

AND DRAINAGE—*continued.*

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | | | REMARKS. |
|---------|----------------|----------------------------|----------------------------------------|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | ... | 22nd day | 26 days | ... | ... | As much as 2 inches of rib resected. |
| Cure | 26th day | ... | ... | | | Complicated by measles beginning four days before the tube was left out. |
| Cure | ... | 31st day | 47 days | ... | ... | The fluid accumulated very quickly after aspiration. |
| Cure | 22nd day | 26th day | 31 days | | | |
| Cure | ... | More than 36 days | 43 days | ... | ... | Operation followed by immediate re-expansion of the lung. |
| Cure | ... | More than 28 days | 48 days | ... | ... | Discharge scanty and serous on the ninth day, and almost absent on the 28th day. Lung expanded well. |
| Cure | 34th day | 39th day | 48 days | ... | ... | The tube was removed on the 22nd day, but had to be replaced. Temperature came down the day after operation, and remained down. |
| Cure | 7th day | 50th day | 51 days | ... | ... | Temperature was hectic for a week, a fortnight before the patient was discharged. |
| Cure | ... | ... | 60 days | ... | ... | August 22, serous discharge. September 19, very little discharge. Discharged with a sinus remaining. |
| Cure | 30th day | 32nd day | 32 days | ... | ... | Very much thickened pleura. Not much discharge on the ninth day after operation. |
| Cure | ... | Almost healed on 23rd day. | 32 days | | | |
| Cure | 16th day | 18th day | 37 days | ... | ... | Pointing between fifth and seventh spaces, just outside nipple line. Spleen pushed down. |
| Cure | 15th day | 18th day | 40 days. | | | |
| Cure | In two months. | ... | 12 weeks | ... | ... | Very little discharge on the eighth day after operation. On the twenty-first day the wound was enlarged on account of the ribs falling together. |
| Cure | 17th day | More than 23 days. | 24 days | ... | ... | Wound not quite healed when the patient was discharged. |
| Cure | 8 weeks | ... | 9 weeks | ... | ... | A little purulent discharge four days before patient left the hospital. Spleen pushed down before the operation. Lung expanded well. Contracted chest. |

CASES TREATED BY RESECTION

| No. | Sex. | Age. | Side Affected. | Cause assigned. | Mode of treatment. | Nature and amount of fluid. |
|-----|------|------|----------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------|
| 79 | M. | 8 | L. | Acute onset with pain in the side sixteen days ago. | Aspiration, May 17 ... Resection, May 22... .. | Sero-pus, 2½ pints Sero-pus, 12 ozs. |
| 80 | M. | 8 | R. | Pneumonia | Aspiration, July 29 ... Resection, Aug. 7 Irrigation with solution of iodine. | Pus, 5½ ozs. Pus, 16 ozs. |
| 81 | F. | 8 | L. | Bronchitis four months ago. | Resection | Pus, 15 ozs. |
| 82 | F. | 9 | L. | Acute onset five weeks ago. | Resection | One pint of thick greenish pus. |
| 83 | M. | 10 | R. | Cough five weeks .. | Resection, Feb. 20... .. | Pus, 6 ozs. |
| 84 | M. | 11 | L. | Ill 2 months. Aspiration. | Resection and irrigation with boracic acid and sublimate lotions. | 8 ozs. of very foul thick greenish pus. |

CASES OF

| | | | | | | |
|----|----|----|-----|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 85 | M. | 3½ | ... | Broncho-pneumonia ... | Exploration, R. side ... Incision, L. side | <i>Nil</i> Sero-pus, 10 ozs. |
| 86 | F. | 6 | ... | Gradual onset for three weeks. | <i>Right side—</i> Aspiration, Aug. 2 " " 16 Incision, Sept. 2 <i>Left side—</i> Exploration, Aug. 23 Aspiration, Nov. 8 | Pus, 5 ozs. Pus, 5 ozs. Pus, 5½ ozs. Pus Pus, 2½ ozs. |

Of these 86 cases, no less than 84 were cases of unilateral effusion. The patients have been under the care of seven different physicians, and the surgical treatment was carried out by a much larger number of surgeons, consequently there is a considerable variation, both as regards the treatment adopted, and detail in the mode of operation.

AND DRAINAGE—*continued.*

| Result. | Tube removed. | Wound healed. | Duration of treatment after operation. | REMARKS. |
|---------|---------------|-------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cure | 36th day | More than 41 days | 7 weeks | Noted that there was not much discharge on the twelfth day after operation. |
| Cure | ... | ... | 6 weeks | August 7-14 normal temperature. August 26 wound open still. September 1-5 hectic temperature. September 19 discharged. |
| Cure | 21st day | ... | 23 days | Pewter wire put in when the tube was removed. |
| Cure | 21st day | 29th day | 37 days | Markedly hectic temperature before the operation; subnormal subsequently. |
| Death | ... | ... | 16th day | January 31. Partial discharge through lung. Secondary pneumothorax. Died with severe abdominal pain. <i>Post-mortem.</i> —A large cavity drained by the operation, and two smaller ones shut off by adhesions. A bronchus of considerable size opened directly into the large cavity. Tubercles in the collapsed right lung. Two small abscesses (? pyæmic) in upper lobe of left lung. Purulent peritonitis, about 8 ozs. of turbid fluid. |
| Cure | 60th day | ... | 80 days | A month before admission he was aspirated twice at another hospital and no fluid found. Sinus still present when discharged, and six months later. |

DOUBLE EMPYEMA.

| | | | | |
|-------|-----|----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Death | ... | ... | 4th day | <i>Post-mortem.</i> —Extensive broncho-pneumonia of both lungs. Small localised empyema on the right side, containing thick purulent lymph. |
| Cure | ... | 45th day | ... | Serous discharge from the right side on the fourth day after operation. An attack of acute nephritis began on September 17. Patient discharged November 25. |

Age.—Four cases were exactly a year old, none were under that age. 57 were under 6 years of age, 27 between 6 and 12; a proportion of incidence more than two to one in favour of the earlier half of the period of age under observation. Nearly a half, 38 out of 84, were between 2 and 5 years old. The average age of the whole series is about $4\frac{1}{2}$.

Sex.—There is no marked preponderance of either sex. The boys numbered 44, and the girls 40.

Side affected.—41 were on the right, and 43 on the left side.

Pointing.—Nine pointed before operation; of these, eight were operated on and one ruptured.

Mortality.—Fourteen out of 84 died; that is 16·6 per cent.

Some of the statistics given by other observers are drawn from cases in children under 10 years of age. In the present series, six cases were between 10 and 12, and of these two died. In order to make the series parallel with the others, these must be neglected, and the reduced series then gives a mortality of 12 out of 78, or 15·4 per cent. Half of the children under 2 died.

TABLE A.

Analysis of the above 84 cases of Unilateral Empyema.

| Age. | Recovered. | Died. | Total. | Mortality per cent. |
|--------------------|------------|-------|--------|------------------------|
| 1 | 2 | 2 | 4 | 50 |
| 1—2 | 4 | 4 | 8 | 50 |
| 2—3 | 10 | 2 | 12 | 16·6 |
| 3—4 | 7 | 1 | 8 | 12·5 |
| 4—5 | 15 | 3 | 18 | 16·6 |
| 5—6 | 7 | 0 | 7 | 0 |
| 6—7 | 8 | 0 | 8 | 0 |
| 7—8 | 5 | 0 | 5 | 0 |
| 8—9 | 6 | 0 | 6 | 0 |
| 9—10 | 2 | 0 | 2 | 0 |
| 10—11 | 1 | 1 | 2 | 50 |
| 11—12 | 3 | 1 | 4 | 25 |
| Average age, 4½ | 70 | 14 | 84 | 16·6 |

The cases may be subdivided into four groups, according to the surgical treatment adopted.

TABLE B.

| Group. | Treatment. | Cases. | Recovered. | Died. | Average age. | Mortality per cent. |
|--------|------------------|--------|------------|-------|--------------|---------------------|
| I | <i>Nil</i> | 4 | 3 | 1 | 4·6 | 25 |
| II | Aspiration.. | 12 | 12 | 0 | 4·75 | 0 |
| III | Incision.... | 35 | 28 | 7 | 4·6 | 20 |
| IV | Resection .. | 33 | 27 | 6 | 4·5 | 18·2 |

Analysis of Group I.—In only four out of the whole series was no surgical treatment adopted with a view to evacuation of the pus. One of these (No. 2) died of pyæmia, secondary to necrosis of a rib on the right side, an empyema being found on the left side, *post-mortem*. Recovery in the other three cases was slow, but by no means abnormally so, as compared with some of the cases treated by incision or resection. In Case 1 the effusion was re-absorbed; in Case 3 it was discharged through the lung, and in Case 4 it was partially re-absorbed and partially discharged through the lung. In these three, much subsequent contraction of the side was recorded in the notes.

Analysis of Group II.—Cases treated by aspiration only.—Aspiration was performed 18 times in the 12 cases. In one, pus was removed on three occasions. All, except two, consisted of small localised effusions.

In seven, the fluid re-collected after the first aspiration; four of these were treated by further aspiration, two were cured by absorption of the effused products, and one by partial absorption and partial discharge through the lung. One case was aspirated three times, and eventually ruptured externally, the patient making a good recovery. One case was aspirated and the cavity then irrigated with warm water, after which half an ounce of tincture of iodine was injected into the cavity, and allowed to remain there; the patient appears, from the notes, to have done well.

Four of the patients were admitted with lobar pneumonia, and three had a history of a probable pneumonia as the primary cause of the illness. In no case is there any record of complete and perfect recovery, although such may have been the result and

not have been noted. Considerable deformity was noted in five of the patients.

TABLE C.

Analysis of the Cases treated by Aspiration.

| Average age. | Sex. | Side. | Mortality. | Average duration of treatment after the last aspiration. | Remarks. |
|----------------|--------|--------------|------------|----------------------------------------------------------|----------------------------------------------------------|
| $4\frac{3}{4}$ | M. 9 { | R. 4 L. 5 | Nil | 6 weeks | Recovery could not be regarded as perfect in most cases. |
| | F. 3 { | R. 2 L. 1 | | | |

Of the whole series, no less than 40 were treated by aspiration; an analysis of these cases as compared with the analysis of 121 cases collected by Emmet Holt (7) is given in the following table. It will be at once noticed that the only difference is in the mortality. The proportion of those requiring further operative treatment is practically the same.

TABLE D.

| — | Number of cases. | Recovered. | Died. | Required further operation. |
|-----------------------|------------------|------------|-------|-----------------------------|
| Emmet Holt's Series.. | 121 | 23 | 6 | 92 (= 76 per cent.) |
| Present Series | 40 | 12 | 0 | 28 (= 70 per cent.) |

Analysis of Group III.—Cases treated by incision and drainage. —Of these 35 cases, 18 were treated by preliminary aspiration; some of these more than once. In four cases, irrigation was employed as an adjunct to the treatment by drainage. Seven of the cases pointed before admission. One patient was discharged with a sinus still unclosed, but was subsequently admitted, and cured by thoracoplasty. One patient was discharged cured; but was again admitted some time later for a small re-collection; an opening and counter-opening were then made, and eventually she

was discharged with a sinus left (Case 46). Table E shows the distribution of the cases, and the mortality at different ages. It is especially noticeable that of four cases under 2, only one died, and of eight cases under 3, only two died.

TABLE E.

Analysis of the Cases treated by Incision.

| Age. | Recovered. | Died. | Total. | Mortality per cent. |
|-------|------------|-------|--------|---------------------|
| 1 | 1 | 1 | 2 | 50 |
| 1—2 | 2 | 0 | 2 | 0 |
| 2—3 | 3 | 1 | 4 | 25 |
| 3—4 | 5 | 1 | 6 | 16·6 |
| 4—5 | 4 | 3 | 7 | 43 |
| 5—6 | 2 | 0 | 2 | 0 |
| 6—7 | 4 | 0 | 4 | 0 |
| 7—8 | 3 | 0 | 3 | 0 |
| 8—9 | 1 | 0 | 1 | 0 |
| 9—10 | 1 | 0 | 1 | 0 |
| 10—11 | 1 | 0 | 1 | 0 |
| 11—12 | 1 | 1 | 2 | 50 |
| | 28 | 7 | 35 | 20 |

The next table shows, to a certain extent, the length of time during which the tube was kept in, and how soon the sinus closed. Unfortunately, in many cases, one or other of these factors is not noted. The duration of the patient's stay in the hospital, after the operation, is also given.

TABLE F.

| Average age. | Sex. | Side. | Mortality. | Tube remained in the sinus. | Sinus closed. | Stay in hospital subsequent to operation. |
|--------------|----------------|---------------------------------------|--------------|--------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------|
| 4—6 | M. 15 F. 20 | { R. 6 L. 9 { R. 8 L. 12 | 20 per cent. | Average of 20 cases, 30 days. Limits— 1-9 weeks. | Average of 19 cases, nearly 7 weeks. Limits— 17 days- 5½ months. | Nearly 9 weeks. |

Analysis of Group IV.—Cases treated by resection and drainage.—Of these 33 cases, 10 were treated by aspiration before further treatment was adopted. In six cases irrigation was employed as an adjunct to the operative treatment by resection. In only one did the abscess point before admission. Four patients were discharged with a sinus still unclosed.

Table G shows the age, distribution, and mortality of the cases. The most important facts to note are that out of five patients under 2 years of age, no less than four died, and of 11 patients under 3, five died.

TABLE G.
Analysis of the Cases treated by Resection.

| Age. | Recovered. | Died. | Total. | Mortality per cent. |
|-------|------------|-------|--------|---------------------|
| 1 | 1 | 1 | 2 | 50 |
| 1—2 | 0 | 3 | 3 | 100 |
| 2—3 | 5 | 1 | 6 | 16·6 |
| 3—4 | 2 | 0 | 2 | 0 |
| 4—5 | 7 | 0 | 7 | 0 |
| 5—6 | 3 | 0 | 3 | 0 |
| 6—7 | 2 | 0 | 2 | 0 |
| 7—8 | 1 | 0 | 1 | 0 |
| 8—9 | 4 | 0 | 4 | 0 |
| 9—10 | 1 | 0 | 1 | 0 |
| 10—11 | 0 | 1 | 1 | 100 |
| 11—12 | 1 | 0 | 1 | 0 |
| | 27 | 6 | 33 | 18·2 |

The next table shows the same details as Table F, with which it will be compared, and the same remarks apply to it.

TABLE H.

| Average age. | Sex. | Side. | Mortality. | Tube remained in the sinus. | Sinus closed. | Stay in hospital subsequent to operation. |
|--------------|----------------|--------------------------------------|----------------|--------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------|
| 4—5 | M. 16 F. 17 | { R. 9 L. 7 { R. 8 L. 9 | 18·2 per cent. | Average of 18 cases, 31 days. Limits— 1 week—3 months. | Average of 19 cases, 29 days. Limits— 16 days—7 weeks. | Average of 26 cases, nearly 7 weeks. |

It is evident that this table is not of very great value as regards the duration of the sinus, compared to the length of time that the tube remained in.

On comparing Tables F and H remarkably little difference will be noticed. The average age of the patients is practically the same. The mortality among the patients treated by incision is very slightly greater than the mortality among those treated by resection. The tube was kept in on an average almost the same length of time. The wound healed more slowly and the subsequent stay in the hospital was greater among those treated by incision, but the statistics are not sufficiently complete to warrant the deduction of any conclusion from them. It is also important to bear in mind that probably many of the cases treated by simple incision were more severe, in that they were of longer duration, for no less than seven out of the 35 pointed before admission; whereas only one of those treated by resection had pointed. In six of the cases treated by incision a counter-opening was also made: in three of these the counter-opening was made at the time of the first incision (Cases 23, 44, 50); in two it was made a month later on account of insufficient drainage (Cases 29 and 41), and one of these died; in the other (Case 46) at a subsequent operation for letting out a small re-collection of pus. In Case 44 the sinus closed in 38 days, in none in a less period. The next table shows the percentage mortality of all cases under certain ages, treated by incision and resection. It shows in a most striking way that the mortality among the patients treated by resection gradually rises with the diminution in the age of the patient; on the other hand the percentage mortality among those treated by simple incision remains very much the same, whatever the limit of age taken. I have limited the comparison to cases under six years of age for two reasons. Firstly, we have an equal number of cases treated by the two methods under this age. Secondly, two-thirds of the cases in these series compared are under this age.

TABLE K.

Comparative Mortality—Incision versus Resection.

| Age. | Treated by Incision. | | Treated by Resection. | |
|---------|----------------------|---------------------|-----------------------|---------------------|
| | Number of cases. | Mortality per cent. | Number of cases. | Mortality per cent. |
| Under 6 | 23 | 26 | 23 | 21·7 |
| „ 5 | 21 | 28·5 | 20 | 25 |
| „ 4 | 14 | 21·4 | 13 | 38·4 |
| „ 3 | 8 | 25 | 11 | 45·4 |
| „ 2 | 4 | 25 | 5 | 80 |

Out of the whole 84 cases of the present series, 14 died. Of these, five were boys and nine were girls. In six the effusion was on the right side, and in the other eight it was on the left. Table L shows the date after the operation on which the patient died and the cause of death. A *post-mortem* examination was not made in every case.

On examining this table the most striking fact is that, among the cases treated by resection, five out of the six deaths occurred in children of 2 years of age or under; whereas only one of the deaths, among the seven treated by incision, was under that age. The earliest day on which a child died after incision was the fifth, and the cause of death was purulent meningitis. Except perhaps in one case, of those treated by incision, a girl who died from exhaustion on the sixteenth day and had a hectic temperature to the end, there is not a single death which could be ascribed to insufficient drainage. Unfortunately no *post-mortem* examination was made, so even in this case it is mere supposition to say that there may have been retained pus; it was, moreover, noted that the discharge remained sweet. Probably the cause of death was tuberculosis. Three patients, treated by resection, died on the second, third, and fourth days, respectively. In one of them the cause of death was œdema of the lungs and partial consolidation, and I cannot help thinking that the shock of the operation conduced to the fatal result. One patient, a boy of 10, died of pyæmia and peritonitis; this was the only case out of those on

which a *post-mortem* examination was made in which loculated empyema was found.

From this table it is, I think, evident that in considering the relative advantages of incision *versus* resection we are justified in laying very little stress upon the percentage mortality; so many of the patients die from causes apparently unconnected with the operation; especially in the cases treated by incision.

TABLE L.

| Treatment. | Sex. | Age. | Side. | Date after operation. | Cause of death. | Remarks. |
|-----------------|------|------------------|-------|-----------------------|-----------------------------------------------|----------------------------------------------------------------------|
| No operation... | M. | 1 $\frac{2}{3}$ | L. | ... | Pyæmia ... | The effusion was of quite secondary importance. |
| Incision ... | M. | 1 $\frac{3}{4}$ | L. | 12th day | General bronchitis | No <i>post-mortem</i> . |
| | F. | 2 $\frac{1}{2}$ | R. | 16th day | Exhaustion ... | Frequent irrigation. Temperature hectic to end. |
| | F. | 3 $\frac{1}{2}$ | L. | 33rd day | General tuberculosis. | Recent tubercles in lung, liver, and meninges of brain. |
| | F. | 4 | L. | 32nd day | Erysipelas starting from the wound. | Frequent irrigation with carbolic lotion. No <i>post-mortem</i> . |
| | F. | 4 | L. | 36th day | Syncope during irrigation. | Irrigation for three preceding days produced no alarming symptom. |
| | M. | 4 | R. | 5th day | Purulent meningitis of brain and spinal cord. | Also broncho-pneumonia and collapse. |
| | F. | 11 | L. | 10th day | Pericarditis ... | Also nephritis. |
| | M. | 1 | R. | 3rd day | Double pleurisy ... | Ulceration of eyes, scalp, and finger. |
| | F. | 1 $\frac{1}{4}$ | R. | 31st day | Exhaustion ... | No sufficient cause found. |
| | F. | 1 $\frac{1}{3}$ | R. | 4th day | Oedema of lungs and partial consolidation. | |
| Resection ... | F. | 1 $\frac{7}{12}$ | L. | 2nd day | Pericarditis ... | Slight lobular pneumonia. |
| | F. | 2 | L. | 39th day | Bronchitis ... | R. lung carnified. L. lung partially collapsed. |
| | M. | 10 | R. | 16th day | Peritonitis, pyæmia | Imperfect evacuation of a loculated empyema opening into a bronchus. |

STATISTICAL TABLES OF OTHER AUTHORS.

| Reference. | Age. | Cured. | Died. | Total. | Remarks. |
|-----------------------------------------------------------|-------|--------|-------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 'Medical Chronicle,' vol. ix (T. Wardrop Griffith). | 0—1 | 0 | 0 | 0 | The two deaths occurred from advanced phthisis. Average duration of treatment after operation = $6\frac{1}{2}$ weeks. <i>Sex</i> —Cured: M. 17; F. 9. Died: F. 1; (?) 1. <i>Mortality</i> —2 out of 28 = 7.14. Records also two other fatal cases; one died two days after admission before operation, and one was a double empyema. |
| | 1—2 | 2 | 0 | 2 | |
| | 2—3 | 2 | 0 | 2 | |
| | 3—4 | 7 | 0 | 7 | |
| | 4—5 | 1 | 0 | 1 | |
| | 5—6 | 5 | 1 | 6 | |
| | 6—7 | 4 | 1 | 5 | |
| | 7—8 | 1 | 0 | 1 | |
| | 8—9 | 2 | 0 | 2 | |
| | 9—10 | 1 | 0 | 1 | |
| | 10—11 | 1 | 0 | 1 | |
| | 11—12 | 0 | 0 | 0 | |
| ... | | 26 | 2 | 28 | |

Griffith's valuable paper is based on 50 successive cases of empyema at all ages, treated at the Leeds General Infirmary. The surgical treatment was, in every case but one, carried out by himself or under his immediate supervision. The cases were treated by simple incision and drainage and, as far as I can make out from his abstracts, there does not seem to have been the least need of resection, on account of insufficient drainage, in any patient under 12 years old operated on, except one.

| Reference. | Age. | Cured. | Died. | Total. | Remarks. |
|-----------------------------------------------------|------|--------|-------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 'Lancet,' 1894, ii, 738 (Albert E. Morrison). | 0—1 | 3 | 1 | 4 | The cases occurred in general practice. The child under 1 year old was rachitic, and died a week after operation of a fit. The other child died on the third day, of bronchitis. Average duration of treatment after operation = 32 days. In most cases no subsequent deformity, except the scar, remained. <i>Mortality</i> —6 per cent. |
| | 1—2 | 2 | 0 | 2 | |
| | 2—3 | 4 | 1 | 5 | |
| | 3—4 | 4 | 0 | 4 | |
| | 4—5 | 8 | 0 | 8 | |
| | 5—6 | 2 | 0 | 2 | |
| | 6—7 | 5 | 0 | 5 | |
| | 7—8 | 0 | 0 | 0 | |
| | 8—9 | 2 | 0 | 2 | |
| | 9—10 | 2 | 0 | 2 | |
| ... | | 32 | 2 | 34 | |

| Reference. | Age. | Cured. | Relieved. | Died. | Total. | Remarks. |
|-------------------------------------------------|-------|--------|-----------|-------|--------|----------------------------------------------------------------------------------------------------------------------------------|
| 'Lancet,' 1894, i, 1128 (J. P. Wightman). | 0—1 | 1 | 0 | 2 | 3 | Relieved = usually a sinus when discharged, which healed rapidly after. |
| | 1—2 | 7 | 1 | 7 | 15 | |
| | 2—3 | 8 | 1 | 9 | 18 | |
| | 3—4 | 13 | 2 | 3 | 18 | Average duration of cases known as cured = 8·8 weeks. Seven out of the 124 were cases of double effusion, and of these six died. |
| | 4—5 | 12 | 3 | 3 | 18 | |
| | 5—6 | 11 | 3 | 3 | 17 | |
| | 6—7 | 10 | 3 | 2 | 15 | Therefore the mortality of unilateral effusion was 23 out of 117 = 19·6 per cent. |
| | 7—8 | 3 | 1 | 0 | 4 | |
| | 8—9 | 5 | 0 | 0 | 5 | |
| | 9—10 | 1 | 1 | 0 | 2 | Four cases might be discarded on various grounds: thus reducing the mortality to 16·8 per cent.; 19 out of 113. |
| | 10—11 | 4 | 1 | 0 | 5 | |
| | 11—12 | 2 | 2 | 0 | 4 | |
| | ... | 77 | 18 | 29 | 124 | |

The cases occurred in the Infirmary for Children, Liverpool, during a period of six years.

The causes of death in the 19 fatal cases were:—

1. Pericarditis in ten; in eight of these it was purulent, and in four it was associated with peritonitis.
2. Broncho-pneumonia in five.
3. Rupture into the lung in two; many sinuses in its substance.
4. Cellulitis of the chest wall in two; in one associated with septicæmia.

Thus in no less than 12 out of the 19 the cause may have been a primary septic condition or a secondary septic infection.

The next table shows the results obtained from treatment by simple incision and drainage, placed side by side. Each series is reduced, where necessary, to cases under 10 years of age.

TABLE M.

Results of 197 cases treated by Incision and Drainage.

| Number of series. | Reference. | Recovered. | Died. | Total. | Mortality per cent. |
|-------------------|---------------------|------------|-------|--------|---------------------|
| I | A. E. Morrison .. | 32 | 2 | 34 | 6·0 |
| II | Wardrop Griffith .. | 25 | 2 | 27 | 7·4 |
| III | J. P. Wightman (a) | 85 | 19 | 104 | 18·3 |
| IV | Present series .. | 26 | 6 | 32 | 18·7 |
| | Total | 168 | 29 | 197 | 14·7 |

NOTE (a).—Wightman's cases of double effusion are mixed up

with those of unilateral effusion, and, as their age is not stated, this table may not be absolutely accurate.

It is curious that the mortality among the cases treated by many physicians and surgeons (Series III and IV) is practically the same. On the other hand the mortality among each series of cases under one surgeon's treatment (Series I and II) is also practically the same, but strikingly less than in Series III and IV.

I have only been able to avail myself of one series of cases treated by resection and drainage (2). This is illustrated in the following table :—

TABLE N.
Dr. Batten's Series.

| Age. | Recovered. | Died. | Total. | Mortality per cent. |
|---------|------------|-------|--------|---------------------|
| Under 1 | 1 | 0 | 1 | 0·0 |
| 1—2 | 3 | 2 | 5 | 40·0 |
| 2—3 | 13 | 3 | 16 | 18·7 |
| 3—4 | 3 | 3 | 6 | 50·0 |
| 4—5 | 7 | 0 | 7 | 0·0 |
| 5—6 | 5 | 0 | 5 | 0·0 |
| 6—7 | 5 | 0 | 5 | 0·0 |
| 7—8 | 2 | 0 | 2 | 0·0 |
| 8—9 | 0 | 0 | 0 | 0·0 |
| 9—10 | 1 | 0 | 1 | 0·0 |
| | 40 | 8 | 48 | 16·6 |

Unfortunately in this table are included eight cases of double effusion, of which three died. Resection was only performed in 45 of the cases; the other three ought, therefore, to have been excluded. Further resection was required in five. Two cases pointed before admission. The eighth rib was the one most commonly chosen for the operation. One of the deaths was due to diphtheria when the empyema had almost healed, and another was a case of pyo-pericarditis, in which the effusion was found *post-mortem*. Excluding all the cases of double effusion, the case which died of diphtheria, and the one with pyo-pericarditis, the reduced series gives a total of 38 cases, of which three died, a mortality of only 8 per cent. The causes of death in these three

fatal cases were (i) peritonitis, death ten hours after admission; (ii) died the day after admission, large vegetations being found on the tricuspid valve; (iii) pyæmia, no *post-mortem*.

Comparison of Batten's Series with the Series under observation, treated by Resection and Drainage.

TABLE P.

Results of 69 cases treated by Resection and Drainage.

| — | Recovered. | Died. | Total. | Mortality per cent. |
|----------------------|------------|-------|--------|------------------------|
| F. E. Batten | 35 | 3 | 38 | 8·0 |
| Present Series | 26 | 5 | 31 | 16·1 |
| Total | 61 | 8 | 69 | 11·6 |

On referring to the previous tables it is seen that the mortality of Batten's collected cases is rather greater than Morrison's and Wardrop Griffith's. On the other hand, it is considerably less than Wightman's, whose cases were also collected from a children's hospital. Only three of Batten's cases under 2 years old were cases of single effusion, and they recovered.

GENERAL CONSIDERATIONS.

Granted that pus has been diagnosed in the pleural cavity, and the diagnosis verified by exploration, the case may be left to nature, or the fluid must be removed.

An unoperated on empyema has three courses open to it:

1. It may be re-absorbed. In such an event, the fluid parts are first absorbed, the solid parts undergo fatty degeneration or necrosis, and are then also absorbed, or a caseous mass may be left behind, and be a dangerous focus for future mischief.

2. It may rupture externally, through the chest wall, leaving a chronic sinus which heals with difficulty.

3. It may rupture internally, through the lung or into a bronchus. In very rare cases the rupture may be into the œsophagus.

All these courses are slow and dangerous. The first is the most favourable result, and occurs, most commonly, in cases secondary to pneumonia. Such a re-absorption occurred in Case 1; also in three cases treated by aspiration, for in these it was noted that the fluid re-accumulated after aspiration. In eight other cases, rupture was averted by timely operation.

One of the cases untreated by surgical interference (Case 3) discharged through the lung; another (Case 4) discharged partially through the lung, and was partially re-absorbed. A few of the cases, surgically treated, discharged partially through the lung; in one of these a direct opening into a good-sized bronchus was found *post-mortem*.

It is in cases left to nature only that we most commonly see the characteristic sequelæ of the complaint; such as a chronic sinus, deformed chest, shrunk side, approximated ribs, depressed shoulder, curvature of the spine, diminished movement of the chest, displaced heart, fibroid changes in the lungs, tuberculosis, and lardaceous disease. The usual condition of the lung is one of great diminution in size; it is solid, carnified, retracted into the angle formed by the ribs and vertebral column, and covered by a dense layer of thickened pleura, from whose inner surface dense strands of fibrous tissue penetrate into the substance of the lung. Similar results occasionally ensue in cases treated on approved methods, but of long continuance before reaching the surgeon's hands. This is not, however, a necessary sequence, for we frequently see complete re-expansion of the lung, even in cases of long-standing effusion, after evacuation.

The mortality of untreated cases is usually large. According to the statistics of Rilliet and Barthez, 21 died out of 33 cases which were not treated surgically. That cases left to nature do undergo absorption, and ultimately are perfectly cured, is undoubtedly true. Russell (8) records two cases of children who had pneumonia, and subsequent effusion of pus, the diagnosis being proved by exploration; in both the effusion cleared up in a few days.

It is clear, therefore, that in spite of the doctrine of Solis-Cohen, that "the absorption of pus is in practice a myth," some small purulent effusions are re-absorbed, and the patient makes an excellent recovery.

It is still more clear that such a result is very uncertain, and

that the risks incurred by a policy of non-intervention, both as regards life or subsequent deformity, far outweigh the risks of surgical interference.

I most emphatically maintain that in every case of empyema in children, the only sound treatment is to evacuate the pus. In addition to this evacuation, we must aim at preventing re-accumulation, at procuring complete re-expansion of the lung, and at leaving behind no deformity of the chest wall or spine. To a certain extent our method of evacuation may depend upon the nature of the fluid effused. Absorption has been shown to be a possibility in cases due to pneumococcus; if, therefore, a large part of the effusion be removed by aspiration, the remainder may be absorbed. It is a very simple plan to remove a few drops of the fluid by means of a sterilised syringe, and to examine it both microscopically and bacteriologically. If streptococci are found, it is exceedingly improbable that the case will result in cure by absorption; on the other hand, if only pneumococci be found, such a result is a possibility.

Advantages of Aspiration.—It is useful in cases of urgency, and in cases of double effusion, as a temporary expedient for removal of the pus from one side of the chest. If the effusion is very large, it is sometimes an advantage to remove some of it before performing the major operation; by such a measure, the size of the cavity is diminished, and the lung is enabled to re-expand. It is the only available means for removing the pus when, owing to the ignorance or stupidity of the parents, it is impossible to gain consent to more radical treatment. No open wound is made.

Disadvantages of Aspiration.—A thin purulent fluid will pass through the cannula readily, but a thick one, or one containing flakes of lymph, soon blocks it up, and prevents any further flow. It is impossible to remove all the contents of the cavity, and consequently an irritating focus remains, and, as a rule, the fluid re-collects, often with most extraordinary rapidity. If the operation be carried out too rapidly, there is danger of rupture of some of the air vesicles, and the production of pyo-pneumothorax, or of the production of serous œdema of the opposite lung.

Undoubtedly, cases are cured completely by simple aspiration. Carmichael showed, before the Edinburgh Medico-Chirurgical Society on February 6th, 1889, two children who had recovered

perfectly under this treatment. Bontor (9) recorded cases, of a boy $2\frac{1}{2}$, and a girl 7, from each of whom 8 ounces of pus were removed by aspiration, after which they recovered perfectly; the two sides of the chest being absolutely symmetrical, in the boy eight months, and in the girl six months, after the operation. In Bontor's cases, the fluid was serous at first, and subsequently became purulent, the assigned cause of the effusion being broncho-pneumonia.

In the present series of 12 cases cured by aspiration, there is no note of perfect cure having resulted from the treatment, although such may have been the termination. As is usual in a large general hospital, the patients are lost sight of when discharged.

Other methods of removal of the fluid, without making an open wound, are sometimes employed, *e.g.*, puncture with a trocar and cannula; syphon aspiration by means of a trocar and cannula, and a long tube leading into an antiseptic fluid, and so arranged that air cannot enter the chest; aspiration combined with subsequent irrigation; aspiration followed by irrigation, and the injection of tincture of iodine; constant aspiration. None of these can I recommend, except the method of syphon aspiration, which, personally, I prefer, to the use of the aspirating bottle. If the bottle be used, it must be only partially exhausted at first, and the pump then worked very gently while the fluid is running. The cannula should be withdrawn, if the fluid become blood-stained, or much coughing be excited.

Supposing one aspiration does not cure the patient, in spite of the fact that some cases are cured by repeated aspiration, I am strongly opposed to such a line of treatment. A favourable result is improbable, and the prolonged illness and suppuration render the patient less able to undergo the more serious operation of drainage.

The two methods of drainage commonly employed are (i) Incision, and (ii) Resection, either of which may be supplemented by irrigation.

Advantages Claimed for Resection over Simple Incision.

1. That better drainage is secured.
2. That the boundaries of the cavity can be explored, and all loose adhesions broken down.
3. That there is less danger of hæmorrhage.
4. That the chances of a perfect cure are better.
5. That recovery is more rapid.

Advantages Claimed for Incision over Resection.

1. That the operation is simpler and more quickly performed.
2. That the shock is less.
3. That there is less risk of pyæmia; the medullary cavity of a rib not being laid open.
4. That drainage can be secured quite efficiently, and that consequently the more severe operation is unnecessary. Huber (10), in an experience of at least a hundred cases, four double, of empyema in children, found no difficulty in inserting a tube. He has repeatedly shown that an india-rubber tube, $\frac{3}{8}$ to $\frac{1}{2}$ inch diameter, can be readily introduced through an intercostal space of a child under 1 year of age. Neither Morrison nor Wardrop Griffith found any difficulty in the matter of drainage, except in one case of Griffith's series, and of the present series in only one case (No. 28) would resection have been a better method of treatment. This was a patient with a history pointing to a long continued effusion, in whom the ribs were so close together that although she was $3\frac{1}{2}$ years old, a drainage tube would not pass between. Even if the tube be a little nipped at first, on the next day it will be found expanded to its full diameter. In the last two cases under my own care (Nos. 17, 20) drainage was easily and amply secured without resection. In one, a girl 12 months old, the sinus closed on the 17th day; in the other, a girl $1\frac{1}{2}$ years old, it closed on the 18th day, although there was a history of a duration of illness for three months. In both the lungs expanded fully, and the two sides of the chest were symmetrical when the patients were discharged.

Certainly, when resection is performed, it is easy to insert the finger and break down adhesions. To my mind this does not seem an unmitigated blessing, for there is a danger of causing

a much more extensive pleural inflammation, and converting a local into a general empyema. As regards hæmorrhage, to judge by the present series of cases, there does not appear to be much risk of serious bleeding under either method of operating. It is only necessary to remember, in order to avoid such a complication, that the artery runs along the under border of the rib. The assertion that the chances of a perfect cure are better under treatment by resection is not supported by clinical experience. On referring to the present series, it is found that of the patients treated by resection, more were discharged with a sinus than in the case of those treated by incision. The duration of time during which the sinus is kept open depends upon the length of time the tube is kept in; this depends mainly on the fancy of the operator. It is on this fact that the length of the subsequent treatment depends, and not upon any special virtue of resection. Early contraction of the side is more likely to follow resection than incision; it is not a sequela to be aimed at.

Indications for Resection.

1. When the ribs are so close together that it is impossible to drain the cavity without. This is a condition that very rarely occurs in children, and is only likely to be found in long-standing cases.

2. When drainage is found, subsequently to the simpler operation, to be imperfect. The indications consisting in a high temperature and an offensive discharge.

3. When the lung has re-expanded and the chest-wall contracted, and yet the sinus does not close. Resection of portions of several ribs is generally required in such cases.

The Anæsthetic.—Neither chloroform nor ether are contra-indicated and, as a rule, general anæsthesia is preferable to local, more especially if exploratory punctures are required before proceeding to the operation. The anæsthetic, especially if it be chloroform, must be given with very great care in cases of large effusion on the left side of the chest, in cases of prolonged duration, and in cases of double effusion; in such, local anæsthesia by ice or cocaine may be preferable. While the patient is under the anæsthetic it is better to complete the operation as the patient lies on the back, serious collapse sometimes follows the turning on the side frequently adopted.

The Site of Operation.—In localised effusions this will necessarily vary with the situation; it is advisable to make the incision as nearly as convenient over the centre of the dull area, having previously proved by exploration the presence of pus in the situation chosen. In a general effusion the fifth space in the mid-axillary line, or between that and the posterior axillary line, is the most convenient place for both patient and surgeon, and the most satisfactory for drainage. An incision in any space below the seventh on the right side and the eighth on the left entails a certain amount of risk to the diaphragm. Although below these limits may be found the most dependent part of the cavity when the patient is sitting up, it is not so when the patient is lying on the back. In a child on its back the most dependent part of the pleural cavity is in the posterior axillary line or just in front of it. If the opening be made lower down, especially on the right side, it is liable to be closed by the flap valve action of the diaphragm, which ascends very high in children. Some surgeons prefer to make the opening more posteriorly, under the impression that the cure of an empyema depends upon the action of gravity, whereas gravity is of comparatively small importance. The three main factors which lead to the obliteration of the cavity are:—

1. Expansion of the lung; this is by far the most important and also the most efficient aid in procuring proper drainage.
2. The ascent of the diaphragm.
3. The falling in of the chest-wall, a result by no means to be desired before the opening has closed and the lung has regained as much of its expansion as possible.

The Operation.—Surgical details can be found in any text-book. It is advisable to explore at the point where it is proposed to make the incision; to use a large needle, an ether syringe is as useful as any more complicated apparatus; and to explore in several regions if pus is not obtained at the first attempt, and if the physical signs and symptoms indicate that a purulent effusion is present. Of course the usual precautions to prevent infection by dirty implements must be employed, they are simple and easily carried out, and there is practically no risk of converting a simple serous into a purulent effusion, even by several explorations.

The Management of the Tube.—In this lies a large part of the success of the treatment. In the first place it is absolutely unnecessary to use a long tube. Let the calibre be as large as

convenient and use a tube about 2 inches long. The origin of the practice of using a long tube appears to lie in a misconception that the healing of an empyema depends upon the cavity being closed by granulations, and that it must heal from the bottom.

As long ago as 1876 Frantzel (11) stated his belief "that the whole of the pleura pulmonalis and costalis, after it has thrown off the various necrosed masses, becomes covered with granulations. These become adherent, adhesion beginning most commonly near the root of the lung and spreading from thence. The hitherto compressed lung, by fits of coughing and other expiratory efforts with a more or less closed glottis, fills itself with air from the sound lung."

Erichsen, also, in his standard work on surgery, speaks of the wound and sinus healing by granulation. But it is not the cure by the slow process of granulation that we must regard as the *summum bonum* of treatment. What is really required is a rapid and complete re-expansion of the lungs, and it is a distinct disadvantage if adhesions form before the lung is fully expanded and the opening closed. It is advisable to use two tubes, changing them daily. Some rubber tubes contain an excess of sulphur, and a new tube of this kind inserted in place of one which has been used daily for some time may cause a temporarily increased purulent discharge on account of its irritating chemical properties. This increased discharge, together with an offensive smell due to the evolution of sulphuretted hydrogen, may lead the surgeon into supposing that the case is going to the bad, and that some further treatment, such as irrigation, is required.

The Duration of Drainage.—Erichsen states that "in children, especially if the opening has not been deferred too long, the wound may be allowed to close after a month." Unfortunately too much hospital practice is based on assertions like this. Time after time do I find in the notes of the above series of cases the words "discharge scanty and serous," and yet the tube is allowed to remain *in situ* until the surgeon finds that the discharge is again purulent, and he flatters himself on his prudence and foresight in not removing the tube. Sutherland, and I agree with him absolutely, states that the opening should be regarded purely as a temporary exit for the fluid. In almost every case it will be found that soon, sometimes in two or three days, the discharge becomes sero-purulent, or even serous, and that it rapidly becomes scanty, then

is the time to remove the tube. Any tube, much more so when it is a long one, will keep up irritation and lead to a prolonged discharge. After it is removed the wound remains open a few days and allows any superfluous fluid to escape. I have no doubt that if this practice of early removal of the tube be carried out, it will be found that the recovery of cases of empyema will not only be more rapid but more perfect than is usually the case at present. Occasionally it happens, when the wound is allowed to close too soon, that a small amount of pus re-collects under the site of the scar; it can be readily evacuated by a simple incision and treated as a simple abscess.

Sutherland recommends removal of the tube as early as the third day in some cases, and records perfect results under such treatment. No hard and fast rule can be laid down, except that the tube must be removed early, as soon as the discharge is serous and scanty.

The Cavity.—Air must not be allowed to enter. Practically at the time of the operation this cannot be prevented, but it does not appear to do any harm. As soon as the tube has been inserted and the dressings applied, the air is driven out again by the expansion of the lung and the ascent of the diaphragm, and the dressings, acting as a kind of valve, prevent it re-entering. Great care must be taken to fix the tube in some way so as to prevent it slipping into the cavity; cases are not unknown in which such an accident has happened, and given rise to a prolonged discharge. Exploration of the cavity is sometimes adopted at the time of operation, especially in cases where resection of a part of a rib has been performed; the finger is introduced and used to determine the extent of the cavity, to scrape away adherent lymph, and to break down adhesions. Beyond the gratification of an idle curiosity it does not seem to me that any advantage is gained by thus further complicating a simple operation. On the other hand, it is frequently urged that the breaking down of adhesions in this way allows of earlier and more complete expansion of the lung. Blake (12) records six cases of children treated in the North Eastern Hospital for Children after the following method:—A portion of the rib was excised, the fluid run out, and the flaky semi-organised lymph removed with a sharp spoon; 4 ounces of iodoform emulsion were run in, and 1 ounce was allowed to

remain in the cavity. In all the wound healed in 12 to 14 days, one died later from broncho-pneumonia on the same side. Besides the risk of iodoform poisoning, there is no particular advantage gained by this mode of treatment, and the good results were due more probably to the early removal of the tube, on the 9th to 11th day, than to the treatment of the cavity.

Irrigation is another adjunct to treatment by simple incision or resection; occasionally it has been employed after aspiration. It may be adopted at the time of operation or subsequently.

Warm water, various dilute antiseptic solutions, or "perflation," after the method advocated by Dr. Ewart (13) some years ago, can be employed.

A solution of perchloride of mercury, one in five to ten thousand, is the best and safest. Carbolic acid should never be used, on account of the susceptibility of children to poisoning by that agent.

The advantages claimed for this treatment are that all pus, whether fluid or solid, is removed, thus removing the source of irritation, and that the cavity is rendered aseptic. The disadvantages are that syncope may be induced, and adhesions broken down. Syncope occurs at times in cases where irrigation has been used many days subsequent to the primary operation, as in Case 34. Moreover, the treatment is unnecessary, pus and lymph, which will come away on gentle irrigation—and forcible irrigation is certainly dangerous—will come away with equal readiness in the course of 24 hours or so without. Irrigation is only permissible in cases of foetid effusion, an exceedingly rare primary condition in children. Either weak sublimate lotion or tincture of iodine, a drachm to the pint, is the most suitable.

Causes of Bad Results.—No matter what treatment is adopted, there will always be a small proportion of cases which do not recover, or are left with a chronic sinus, or develop some complications. The chief causes of such unsatisfactory results are as follows:—

1. Prolonged duration of the effusion previous to evacuation. In such cases the lung is so bound down by adhesions, and so altered in structure by the ingrowth of fibroid tissue from the pleura, that it is unable to expand. Such a condition is not a necessary sequence of long continued effusion; in some of these cases rapid and complete expansion ensue.

2. Partial discharge through the lung. If there is a fairly free communication with a bronchus the lung cannot expand.
3. Syncope during the operation or on subsequent irrigation.
4. Pyæmia.
5. Various complications; chiefly broncho-pneumonia or tuberculosis.

DOUBLE EMPYEMATA.

I have collected 20 cases recorded in various journals and periodicals. To these are added 2 from the above series, and 15, referred to by Batten and Wightman in their papers, making a total of 37. These latter 15 are only imperfectly recorded.

| No. | Reference. | Sex. | Age. | Side. | Mode of treatment. | Nature and amount of fluid. |
|-----|----------------------------------------------------------------------------|------|------|----------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1 | 'Lancet,' 1892, i, 1299 (Deanesley). | ... | 1½ | L. R. | Resection ... <i>Nil.</i> | ... |
| 2 | 'Lancet,' 1894, i, 1439 (Sutherland). | F. | 2½ | R. L. | Resection and irrigation do. do. | Much thin greenish pus. Pus, (?) amount |
| 3 | 'Lancet,' 1880, ii, 617 (Sangster). | M. | 2 | R. L. | Incision ... Aspiration twice. | ... |
| 4 | 'Medical Chronicle,' vol. ix, 444 (Wardrop Griffith). | M. | 3 | R. L. | Incision ... do. ... | Pus, 2 ozs. Pus, a small amount. |
| 5 | 'Oertl. Intell. Münch.,' 1883 (Brauser). | M. | 3 | R. L. | Incision and irrigation... do. do. | ... |
| 6 | 'St. Bart's. Hosp. Journal,' 1894 (Cautley). No. 85 in above series. | M. | 3½ | R. L. | Exploration ... Incision ... | <i>Nil</i> Sero-pus, ½ pint |
| 7 | 'New York Med. Jour.,' vol. lii (Westbrook). | F. | 4 | R. L. | Incision ... Aspiration five times. Incision. | Pus, 1 pint |
| 8 | 'Lancet,' 1894, i, 1439 (Sutherland). | M. | 5 | L. R. | Resection and irrigation do. do. | Pus, 5 ozs. |
| 9 | Same. | F. | 5 | R. L. | do. do. do. do. | ... |
| 10 | 'Archives of Pediatrics,' vol. vi (Huber). | ... | 5½ | ... | Double incision, irriga- tion and drainage. | ... |
| 11 | 'Lancet,' 1888, ii, 114 (Blunt and Okell). | M. | 5¾ | R. L. | Resection ... Incision ... | Pus, 30 ozs. Pus, 9 ozs. |
| 12 | 'Lancet,' 1894, i, 1439 (Sutherland). | M. | 6 | R. L. | Resection and irrigation do. do. | ... |
| 13 | 'Archives of Pediatrics,' vol. ix (Huber). | M. | 6 | R. L. | Incision and irrigation... do. do. | Pus, 20 ozs. |
| 14 | 'Lancet,' 1890, ii, 120 (Morgan and Mitchell Bruce). | M. | 6 | L. R. L. L. R. | Aspiration ... do. ... do. ... Resection ... do. | Pus, 8½ ozs. Pus, 22 ozs. Pus, 4 ozs. Much pus |
| 15 | Case 86 in above series | F. | 6 | R. R. L. R. L. | Aspiration, Aug. 2 ... " Aug. 16 ... Exploration, Aug. 23 ... Incision, Sept. 22 ... Aspiration, Nov. 8 ... | Pus, 5 ozs. Pus, 5 ozs. Pus Pus, 5½ ozs. Pus, 2½ ozs. |

| Interval between the operations. | Result. | Course. | REMARKS. |
|----------------------------------|---------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ... | Sudden death. | Died on the 12th day ... | Effusion on the right side was diagnosed the day before death. |
| 12 days | Cure | Each tube was removed on the 3rd day. | Influenza assigned as the primary cause. |
| 5 days | Cure | ... | An interval of five days between the drainage of the right side and the first aspiration of the left. |
| 3 months | Death | Right wound healed in about 11 weeks. | The temperature did not come down even after the second operation. Death ten weeks later. <i>Post-mortem</i> .—Great wasting. No tuberculosis. |
| ... | Cure | Wound healed on each side in 7 weeks. | |
| 2 days | Death | Temperature rose rapidly after the operation, and reached 105° on the 3rd day, just before death. | Admitted a week before exploration with lobular pneumonia and signs of effusion at right base. Exploration in two places was unsuccessful. Effusion on left side came on in the next two days. <i>Post-mortem</i> .—A small localised empyema in the right axilla. Extensive broncho-pneumonia of both lungs, and considerable collapse of the left. Thick lymph covering the left pleura. |
| 2 months | Cure | Tube out { R., 13 weeks L., 7 ,, Wounds healed in another 7-10 days. | The first aspiration was done six days after the incision on the right side. Consent to the second incision could not be obtained earlier. |
| 1 month | Cure | Tube out { R., 14th day L., 13th ,, Wound healed { R., 7 weeks L., 4 ,, | Cause assigned—pneumonia. |
| 1 month | Cure | Tube out { R., 3rd day L., 10th day | Cause assigned—bronchitis and possibly pneumonia. |
| 10 days | Cure | Wounds healed { R., 8 weeks L., 10 ,, | Cavities irrigated every third day. |
| 5 days | Cure | Wounds healed { R., 7 weeks L., 4 ,, | The left effusion was cured much more rapidly by simple incision than the right by resection. On the other hand it was much smaller. |
| 5 months | Cure | Tube out { R., 4th day L., 12th ,, | The two illnesses were quite distinct, so this case should not strictly be included in the present category. |
| 6 days | Cure | Tube out { R., 9 weeks L., 8 ,, Wounds healed { R., 4 months L., 9 weeks | Illness began with right lobar pneumonia. A small collection of pus, an ounce, under the operation wound on the right side delayed healing. |
| 12 days | Cure | Wounds healed { L., 4 weeks R., 5 ,, | Cause—pneumonia. Double effusion existed when the patient first came under observation. |
| ... | Cure | Wound healed in 45 days | Both the effusions were small, and the one on the left side was cured by simple aspiration. |

| No. | Reference. | Sex. | Age. | Side. | Mode of treatment. | Nature and amount of fluid. | |
|-------|------------------------------------------------------------------|------|------------|-------|---------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------|
| 16 | 'Clinical Society Transactions,' vol. xxiv (Coupland and Gould). | F. | 7 | R. | Aspiration | Pus, 10 ozs. | |
| | | | | L. | Resection. Aspiration | Pus, 18 ozs. | |
| 17 | 'Lancet,' 1891, i, 1385 (Handford). | M. | 7½ | L. | Resection | Much pus | |
| | | | | R. | Resection | Much pus | |
| 18 | 'Clinical Society Transactions,' vol. xxvi (Carr). | M. | 7¾ | L. | Aspiration | Pus, 7 ozs. | |
| | | | | R. | Resection | Pus, 8 ozs. | |
| 19 | 'Liverpool Medical Clinical Journal,' 1893 (Marsh). | M. | 8 | R. | Incision | Pus, 20 ozs. | |
| | | | | L. | Aspiration Incision. | Pus, 12 ozs. | |
| 20 | 'Annals of Surgery,' 1893, xvii, 410 (Warbasse). | F. | 10 | R. | Resection | ... | |
| | | | | L. | Resection. | ... | |
| 21 | 'Lancet,' 1892, i, 1299 (Deanesley). | F. | 10 | L. | Aspiration | ... | |
| | | | | R. | Aspiration Resection. | ... | |
| 22 | 'Lancet,' 1894, ii, 84 (E. L. Fox). | F. | 12 | ... | Simultaneous incision ... | Pus, 60 ozs. | |
| 23-30 | 'Lancet,' 1894, i, 1368 (Batten). | ... | 1 | ... | Cured | | |
| | | | 1 | ... | Cured | | |
| | | | 1½ | ... | Resection on right side. found <i>post-mortem</i> | Left empyema | |
| | | | 2 | ... | Resection on one side. Died of diphtheria. Another effusion found <i>post-mortem</i> | ... | |
| | | | 2½ | ... | Resection on left side; right side aspirated two days before death | ... | |
| | | | 5 | ... | Cured | | |
| 31-37 | 'Lancet,' 1894, i, 1128 (Wightman). | ... | 5 | ... | Cured | | |
| | | | 7 | ... | Cured | | |
| | | | ... | ... | One recovered | | |
| | | | Six died { | | | | Three from extensive broncho-pneumonia |
| | | | | | | | Two from suppurative pericarditis |
| | | | | | | | One uncomplicated |

Of the 22 fully recorded cases, only two died, and in these one side alone had been operated on. In one, the cause of death was extensive broncho-pneumonia; incision and drainage being the treatment adopted for the effusion on the left side two days before. In the other, sudden syncope occurred on the 12th day after resection and drainage on the left side. In two cases a cure was effected by simple incision and drainage on the right side, and aspiration only on the left.

Resection was performed 22 times, and in eight of these was combined with irrigation.

Simple incision was the favoured operation 16 times, and in six was combined with irrigation.

| Interval between the operations. | Result. | Course. | REMARKS. |
|----------------------------------|---------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9 days | Cure | Duration after operation } R., 5 weeks L., 6 " | Aspiration was done several times on each side. The child was much collapsed at each operation of resection. |
| 10 days | Cure | Tube out { L., 9 " { R., 12 " Wounds healed { L., 12 " { R., 15 " | Three-quarters of an inch of the rib was removed at the first operation; the child became much cyanosed under chloroform, but was relieved when the chest was opened. |
| 4 days | Cure | Wounds healed { L., 9 " { R., 3 months | Local anæsthesia employed at each operation; 10 minims of a 20 per cent. solution of cocaine injected. |
| 4 weeks | Cure | Duration after operation } R., 4½ " { L., 5 weeks | |
| ... | Cure | Wounds healed { R., 17 days { L., 17 " | |
| 11 days | Cure | Wounds healed { L., 6 weeks { R., 4 " | Right effusion small and localised. |
| A few minutes | Cure | Tubes out in 3-4 weeks | No change noted in the patient after the incision was made into the second pleura. A lumbar abscess was opened at the same time. |
| ... | ... | ... | { These cases were treated by resection. The intervals between the operations is not referred to. |
| .. | ... | ... | { These cases were treated by incision. No details given. |

Thus we find that irrigation was employed no less than 14 times in 38 operations; a proportion very much greater than in cases of unilateral empyema. No doubt the small percentage mortality, hardly 10 per cent., in these cases is due to the fact that successful cases are generally recorded, and that some cases are only diagnosed *post-mortem*. Of the eight cases referred to by Batten, only three died; one from diphtheria; in one the right side alone was operated on; in the third the left side was operated on, and the right side aspirated. Wightman refers to seven cases, of which no less than six died; three from extensive broncho-pneumonia, two from suppurative pericarditis, and one uncomplicated. Details are unfortunately wanting.

The Treatment.—Godlee, in ‘Heath’s Dictionary of Surgery,’ states that “if a general empyema has been opened, and another form on the opposite side, it is obvious that the only surgical treatment for the second collection is by aspiration.” Coupland and Gould (14) on the other hand assert that “to open a double empyema cannot lead to collapse of the lung,” because adhesions are always present, and prevent any further collapse. In other words, general empyema does not exist; an assertion which is certainly not verified by *post-mortem* experience. Both these statements are much too dogmatic. No doubt it is very rare to find double general empyema, yet we are not justified in concluding that such a condition does never occur. As a general rule each effusion is localised; sometimes one is small and localised, and the other general, as in the fatal case under my own care. Provided that one is localised and the other general, it is by no means necessary to limit the treatment of the second effusion to aspiration only.

The best treatment to adopt is simple incision and drainage, allowing an interval of a few days to elapse between the two operations. Even more than in cases of unilateral effusion do I think it unjustifiable to submit the child to the more severe operation of resection. The treatment should be modified according to the nature of the cases, which may be divided into three classes.

1. Cases of double general effusion.—It is better to aspirate first on both sides in order to diminish the quantity of fluid, and relieve the heart from the encumbrance to its action. Next day operate on one side, and a few days to a week later, operate on the other.—The left side should be chosen for the first operation, and local, rather than general, anæsthesia employed.

2. Cases of general effusion on one side, and localised effusion on the other.—Evacuate the general effusion first, and repeat the operation on the other side a few days later.

3. Cases of double localised effusion.—Simultaneous drainage may be adopted, but, though not necessary, it is a wise precaution to wait a few days between the two operations.

GENERAL SUMMARY.

1. When pus is found to be present in the pleural cavity, the proper treatment is to remove it.

2. The best method to adopt for its removal is simple incision and drainage.
3. The best site for the operation is the fifth space in the mid-axillary line.
4. Irrigation is unadvisable, and is only indicated in cases of foetid effusion.
5. Exploration and scraping of the cavity are not necessary.
6. Resection of rib is practically never necessary in children as a primary procedure to procure efficient drainage.
7. Resection of rib may be necessary to secure the closure of the sinus, subsequently, by allowing the chest-wall to fall in.
8. Collapse of the chest-wall is not a result to be desired in the early stages of the treatment.
9. Rapid and complete expansion of the lung is the great object of treatment.
10. The tube must be removed early.

References.

- (1) 'Lancet,' 1894, i, 1215. Octavius Sturges. "On Empyema in Childhood."
- (2) 'Lancet,' 1894, i, 1368. F. E. Batten. "On Empyema in Childhood."
- (3) 'Lancet,' 1894, i, 198. G. A. Sutherland. "The Treatment of Empyema."
- (4) 'Medical Chronicle,' ix, 441. Wardrop Griffith. "Fifty Consecutive Cases of Empyema."
- (5) 'Lancet,' 1894, i, 1128. J. P. Wightman. "The Treatment of Empyema in Children."
- (6) 'Lancet,' 1894, ii, 738. A. E. Morrison. "The Treatment of Empyema in Childhood." 'Northumberland and Durham Med. Jour.,' April, 1893. "The Treatment of Empyema in Childhood."
- (7) 'Archives of Pediatrics,' ix, 349. Emmet Holt.
- (8) 'Brit. Med. Jour.,' 1893, i, 949. W. B. Russell. "On the Natural Cure of Basal Empyema after Pneumonia."
- (9) 'Brit. Med. Jour.,' 1892, i, 1073. S. A. Bontor.
- (10) 'Archives of Pediatrics,' x, 850. F. Huber.
- (11) Von Ziemssen's 'Cyclopædia,' 1876, vol. iv. Frantzel.
- (12) 'Lancet,' 1889, i, 326. Blake. "On the Treatment of Empyema by Resection of Rib and Injection of Iodoform Emulsion."
- (13) 'Brit. Med. Jour.,' 1886, ii, 226; 1887, i, 595. Ewart. "The Treatment of Empyema by Perflation."
- (14) 'Transactions of the Clinical Society,' vol. xxiv. Coupland and Gould.

Further References.

- 'Jahr. für Kind,' 1892, xxxi, 3. Foltanck. On "Empyema in Childhood, with Special Reference to its Surgical Treatment."

- 'Jahr. für Kind,' 1893, xx, 2. Schenker.
- 'International Clinics,' vol. i, 2nd series. "Empyema and its Treatment by Valvular Drainage."
- 'Archives of Pediatrics,' vol. i. Arbuthnot Lane. "The Treatment of Empyema in Children."
- 'Edinburgh Med. Jour.,' 1888, 495. "An Enquiry into the Method of the Cure of Empyema."
- 'Lancet,' vol. ii, 1893. Bernard Pitts. "The Surgery of the Air Passages and Thorax."
- 'Lancet,' vol. i, 1886. Lectures on the Surgical Treatment of Empyema.
- 'Lancet,' 1888, ii, 114. Godlee.
- 'Brit. Med. Jour.,' 1884, February 14th. Gwynne. "The Treatment of Empyema."
- 'Brit. Med. Jour.,' 1887, i, 1203. "On the Behaviour of Fluid in the Chest, and the Treatment of Empyema."

Mr. JOHN H. MORGAN expressed his great regret at the limited amount of time at the disposal of the Society for the discussion of such an excellent and interesting paper as that to which they had had the pleasure of listening. His belief was that surgical proceedings would be more often followed by speedier and more successful results if they were applied much earlier than was usually the case. Physicians retain an inherent superstition in favour of the aspirating trocar. It was not to be disputed that by the employment of this instrument the cure of a small empyema might often be brought about. But there were deceptions following the use of this instrument which, more often than not, were seriously prejudicial to the patient. Frequently it happened that after the application of this instrument a temporary relief was afforded, the breathing became easier, the temperature fell and the general condition improved. But gradually the graver symptoms reappeared, the cavity again became full, and the operation was repeated with probably a less favourable result. Meanwhile the adhesions of the pleura are becoming more confirmed, the compression of the lung tissue continues, rendering it less capable of expansion, and the strength of the patient wanes. It is under these unfavourable conditions that the surgeon is usually called in to operate. With a large experience of these cases, he would say that the sooner the pus was freely evacuated the better were the chances of the patient's recovery. He had little faith in the aspirator, because its action was uncertain and often incomplete. The method by incision and drainage did not appear to him as well adapted to the case of children, because the close approximation of the ribs did not permit of the free exploration of the cavity by the finger, and the same cause often acted as a preventive to the free issue of discharges through the drainage tube. In the case of children, therefore, he always preferred the removal of a portion of one or more ribs. The operation was simple and attended by little bleeding. The repair was quick. It was surprising to hear that the statistics of this operation when performed in children under 2 years of age were by no means good, but it must be borne in mind that an empyema in a child under 2 was a much more serious affair than the same condition in a child with larger chest, &c. As to the question of irrigation, he had never seen any bad consequences from washing out the cavity, and he had imagined that recovery was greatly aided by the washing out of the thick lining membrane which otherwise took so long

to come away, and which when allowed to remain would often act as a permanent source of irritation. He was in the habit of injecting hot water until there were no more masses of lymph to be brought away, and added boracic lotion if the contents of the cavity were very foul.

Dr. A. MORISON agreed that the sooner pus was evacuated from the pleural cavity the better. No doubt recovery sometimes took place from rupture through natural passages, and especially after the formation of a bronchial fistula; but the results were so unsatisfactory that all must agree to operate as soon as possible. The question before them was what form of evacuation is the best? Some cases of empyema had recovered after a single aspiration, many others after repeated aspirations; but his experience was that aspiration was only of use in cases in which, owing to some emergency, evacuation through a drainage tube was impossible. He used chloroform, and he thought it was safe if carefully given. He had seen serious results follow turning the patient on the side. The patient could be brought to the edge of the table to get better access to other parts. He had operated altogether in 35 cases, the youngest being 7 months and the oldest 9 years. Before incising the chest he always explored with a hypodermic needle. He chose the sixth interspace, a short distance in front of the posterior axillary line. He used an ordinary drainage tube, 2 inches long, perforated in its inner half, and kept from slipping in by a safety pin. The tube was shortened as occasion arose. During the third week he removed the tube and then the wound rapidly healed. If any pus remained, or if the temperature continued high, the tube was reintroduced. They must, however, be careful not to injure the diaphragm. If the discharge continued purulent it was a sign that the wound was septic or that the drainage tube was not acting properly. Thirty-three of the 35 cases were treated in this way, and in only two was resection resorted to. In no case was it rendered necessary for drainage purposes only. Irrigation he had always looked upon as harmful, because it was apt to set up irritation, which caused contraction of the chest later on. Afterwards he prescribed exercises destined to expand the lung. Thirty-three of the 35 cases recovered and two died. One death was in a weakly rickety child, and was due to convulsions a week after the operation. The other was due to acute bronchitis on the third day after the operation. The time of healing was on an average 31 days; 17 days being the least and 61 days the most. He had examined most of his cases frequently since the operation, and in no case except where the rib had been removed was it possible to tell which side had been affected were it not for the scar. In both the cases of Estlander's operation there remained some contraction which became more apparent as the child became older. His belief was that the results of empyema did not depend so much upon the operation as upon the after treatment. If treatment were carried out on Listerian rules, the operation for empyema would soon be limited to simple incision and drainage. In connection with this discussion he might mention that after he had published the article in the 'Lancet' (September 29th), Dr. Sturges wrote to him on the subject of resection, and, while fully agreeing with the conclusion he (the speaker) had come to, that resection of rib was not necessary in the majority of cases, qualified his remarks by saying that it was only in neglected cases that resection was necessary. He was quite prepared to admit that it was only in these cases that resection would prove useful.

February 25th, 1895.

CASES OF LIVER AND GALL-DUCT SURGERY.

By JOHN D. MALCOLM, M.B., C.M., F.R.C.S. Edin.

IN this paper I propose to relate in detail the histories of all the cases of disease of the liver or of the gall-ducts on which I have operated. The cases consist of three in which exploratory incisions were made, two operated on for hydatids, and three in which gall-stones were extracted. The three patients on whom I performed exploratory operations died from the progress of diseases which it was impossible to cure by surgical means, but the operations did not, directly or indirectly, bring about or even hasten the fatal results. The other patients are alive now.

CASE 1. *Exploration; nature of disease not discovered.*—The first of the exploratory operations was performed on a woman 45 years of age, whose family history gave no assistance in diagnosis. She said that a soft tumour had been taken out of her lower jaw 18 years before I saw her, but I have not been able to get any account of this operation. She had suffered from bilious attacks for ten years at almost every menstrual period; the severity of these attacks had, however, been much less for two or three years. A swelling in the abdomen was first noticed in February, 1891, and it had grown considerably before she was admitted to the Samaritan Free Hospital in the following May. At that time there was a slight yellow discoloration of the skin and conjunctivæ. In the right loin there was a solid, smooth tumour, with a rounded outline, fairly movable and not tender, extending from the costal margin to close to the pubes and beyond the edge of the rectus muscle on the left side. It stood out prominently from the rest of the abdominal surface in front. The growth was believed to be connected with the liver, but no definite diagnosis was made. As it was growing rapidly, an exploratory operation was performed on June 16th. The tumour was found to consist of a rounded swelling of the upper part of the liver, the gland being so displaced and twisted that the abnormal enlargement presented anteriorly. There was no hardness and no irregularity of outline in the growth, and, except for the alteration of shape, the surface of the organ appeared to be quite healthy. By passing the finger below the liver I found that the anterior border of the gland was of normal shape, but was directed downwards and slightly backwards, so that it had not been palpable before the abdomen was opened. It seemed as if the whole liver had been displaced downwards and twisted on its axis by something growing in or behind the upper and posterior part of it. I plunged a trocar and cannula deeply into the thickest part of the gland. The instrument appeared to pass through

soft tissues of uniform consistence, and when the trocar was withdrawn nothing but blood escaped. The hæmorrhage was very free, spouting a foot and a half to two feet into the air, and continuing after the cannula was withdrawn, so that I feared it might go on to a dangerous extent. It did not seem as if anything more could be done in the way of curing the patient, and I therefore applied sponge-pressure to the puncture opening and inserted the sutures in the external wound. By the time these were in place the hæmorrhage had almost ceased, and I closed the wound without any anxiety on this point. There was no trouble during convalescence. The patient went home on July 6th, her swelling continued to enlarge, and she died on October 8th of the same year. There was no *post-mortem* examination, and I did not see the patient after she went home, but, as far as I can gather, death was due to asthenia, and no definite diagnosis was made.

The operation in this case was most unsatisfactory in that no benefit resulted, and I did not even find out the exact nature of the disease. The fact that there was no *post-mortem* examination leaves the case permanently an obscure one, but I think some light may be thrown on the matter by the following history. On November 30th, 1894, I saw a woman 38 years of age in consultation with Dr. Malcolm Mackintosh, of Clapham Common. She was suffering from abdominal distension and pain, sickness, and frequent profuse evacuations of the bowels, the stools consisting almost entirely of watery mucus. There was some slight fever, but no jaundice and no renal or heart disease. The patient had borne three children, the third being eleven months old. The symptoms, which had developed very rapidly, suggested the possibility of some pelvic mischief causing irritation of the rectum, but after a careful examination I could find no explanation of the condition of the patient in her pelvis. The liver was very much enlarged, the anterior border of the right lobe being quite free, soft, and natural to palpation, but displaced downwards nearly as low as the anterior superior iliac spines. Owing to the distension I could not define the left lobe by palpation, but percussion showed that it also was enlarged. No definite diagnosis was made, but I thought the mischief was due to something in or above the liver, which was pushing its lower border, and especially the right lobe, downwards. Treatment was directed to relieving the distension and supporting the strength of the patient, and sometimes the flatulence dispersed, the abdomen becoming flat, but a tendency to tympanitis continued to the last. The progress of the case continued to be very rapid, and about a week after I had seen the patient Dr. Mackintosh discovered distinct nodules on the surface of the left lobe of the liver, and was able to make an exact diagnosis. The patient died a month after my visit, on January 1st, 1895. After death Dr. Mackintosh obtained permission to examine the body, and found a moderately hard carcinoma, which seemed to have originated on the under surface of the liver in the region of the portal fissure. There were cancerous nodules scattered through the whole organ; but these were more numerous in the left lobe, fewer and apparently of more recent development on the right side. Dr. Mackintosh attributed the profuse discharge of mucus from the bowel to congestion of the intestine from pressure on the portal vein, a view with which I fully agree. No cancer was found in any other part of the body.

There is a considerable resemblance clinically between this case and that of the patient whose abdomen I explored, as above related; and if we accept the view that pressure on the portal vein was the cause of the

exhausting discharge in Dr. Mackintosh's case, it is obvious that a tumour more deeply placed in the liver substance might have led to a more prolonged illness, and might have induced death without yielding any signs by which a positive diagnosis could be made during the life of the patient, as in the first case.

CASE 2. *Exploration; malignant disease of the liver.*—My second exploratory operation was performed on a patient about 60 years of age, who was under the care of Mr. Evans, of Clapham Common. She had suffered from pain in the neighbourhood of the gall-bladder with liver symptoms of many years' duration, and Dr. George Harley had seen her and had advised that an exploratory operation should be performed. When I saw the patient on January 22nd, 1892, she was emaciated and intensely jaundiced. The liver edge was somewhat lower than it normally should have been, and immediately below it, in the position of the fundus of the gall-bladder, there were two very hard substances, about the size of hazel-nuts, which lay close to the abdominal wall and exhibited some mobility on each other. They felt very like two calculi in the gall-bladder. I made an incision through the abdominal wall just large enough to admit my finger, and on examining the parts I found that the two hard substances were growths standing out from the lower surface of the liver close to its anterior border, and that there were many nodules scattered over this surface as far as my finger could reach. The upper surface showed no irregularity of outline. The gall-bladder was not distended. As the disease was evidently malignant, I at once sewed up the wound. The operation gave rise to little disturbance, and the incision healed without trouble, but the patient became gradually weaker and died of asthenia on March 5th, six weeks and a day after the operation. When I had examined the parts with my finger inside the abdomen in this case, I at once observed that calculi in a gall-bladder could not have remained in position close behind the abdominal wall without being fixed in some way, and there had been no evidence of distension of the gall-bladder or of any condition that would place and firmly hold two calculi fixed in the fundus.

CASE 3. *Exploration; malignant disease of the pancreas and duodenum.*—A third case on which I operated may be regarded as one of exploration of the gall-ducts. The patient had intense jaundice and a large ovarian tumour which prevented any satisfactory examination of the hepatic region. I removed an apparently simple ovarian cystoma, and found that the patient had also a malignant growth of the pancreas. There was no trouble from the operation, but the patient died five weeks after from asthenia, and at the necropsy it was found that the pancreatic tumour involved the descending portion of the duodenum, which was converted into a tube of cancerous tissue so thin in parts that it appeared to be just on the point of bursting. (The case is fully reported in the 'Lancet' of September 8th, 1894.)

CASE 4. *Three operations for hydatids of liver and of sub-peritoneal connective tissue.*—My first case of hydatids was sent to the Samaritan Free Hospital in November, 1890, by Mr. Starling, of Charlton. The patient, who was then 33 years of age, complained of having "lumps" in the upper part of her abdomen, and said that she had suffered from crampy pains in the bowels from time to time for 16

years. These pains had become more frequent and more severe, and she had first noticed the tumours when she was carrying a child that was born two years before I saw her; but two years before that time Mr. Power, of East India Road, who attended her in her first confinement, told her that she had a tumour, for which he recommended her to seek treatment in some hospital. On examination I found an oval mass at the back of the abdominal cavity, a little below the position of the left kidney, somewhat movable, but too small and deeply placed to allow of an opinion being formed as to the presence or absence of fluctuation in it. A little to the right of the normal position of the gall-bladder there was another tumour, rather larger than the first, attached to the lower surface of the liver and distinctly fluctuating. After the patient had been under observation for some weeks a third tumour was discovered a little to the left of the middle line and fixed to the lower edge of the liver by a band-like attachment about half an inch long. All these swellings rapidly increased in size, and in February, 1891, the left one was rather larger than a healthy kidney; the right was nearly round and measured 4 inches in diameter. On percussion it exhibited the peculiar thrill of a hydatid cyst. The more central growth measured about $2\frac{1}{2}$ inches from above downwards and about 2 inches across. The liver dulness began at the level of the nipple above. Immediately below this point an absolutely dull note was elicited for 9 inches, as far as the lower border of the largest swelling, the patient being rather a small woman. To the right and left of this swelling the liver dulness was lower than normal, but the note was resonant over the two smaller tumours. The whole abdomen was slightly distended. At the back the liver dulness was absolute for $1\frac{1}{2}$ inches above the border of the ribs on the left side, and the upper border of the dull area as it crossed over to the right passed gently upwards and round to the nipple line in front. The uterus was anteverted, and there was some endometritis. I thought I could feel both ovaries, of about the usual size and in their proper positions, but somewhat tender to palpation. The patient said she seldom had any cough or expectoration. At the right apex there were some crepitations heard on auscultation, but otherwise the lungs were normal. The apex beat of the heart was displaced upwards and to the left, but the cardiac sounds were normal, and the pulse was fairly strong, beating 84 to the minute. The action of the bowels required to be assisted by medicine, and the patient was thin and losing flesh, but except for the conditions related she seemed to be a healthy woman. The kidney action was good. There was nothing in the patient's history to show how she had become infected by hydatids; she had lived in Woolwich all her life, and said she had never had anything to do with dogs or animals of any kind. Her husband was a waterman.

I operated on February 17th, 1891, making an incision in the middle line of the upper part of the abdomen. After exploring the parts, I first removed the growth from the left loin. It lay in the connective tissue behind the peritoneum, its connections being easily separated except posteriorly, where they were more dense and much more vascular, so that numerous vessels required to be ligatured, although I did not tie them until the end of the operation, in the hope that pressure by forceps might arrest the bleeding. I attempted to remove the cyst unopened, but I had to use a good deal of force, and it unfortunately burst. There was little of the contents spilled over the peritoneum, however, because the sac was ruptured by considerable pressure, and the fluid was in great measure, if

not entirely, discharged outwards. The tumour consisted of a single sac, having the characteristic lining of membranous tissue formed by the parasite, surrounded by the usual adventitious fibrous capsule developed by the host. It contained no daughter cysts. I next took out the smaller of the cysts below the liver. It seemed to be outside this organ, but connected with it by a kind of pedicle, which I tied as I would tie the attachment of an ovarian tumour. This hydatid contained daughter cysts. The largest of the tumours was in the liver substance. I cut into it and removed much fluid and numerous daughter cysts, taking great care to keep the peritoneum clean by means of sponges packed round the opening. When I had removed most of the contents of this cavity I again explored the abdomen and found that there was a chain of hydatids running backwards along the lower surface of the left lobe of the liver. Some of these I enucleated, but the manipulation became more difficult as I had to follow the cysts deeper, and when the patient had been about three hours on the table I felt compelled to desist from further attempts. It was obvious that there were more cysts in various parts of the peritoneum, and that there were other cysts in the liver substance. A very long time would have been necessary to deal with them all, and the patient's condition did not warrant a continuance of the operation. I was, however, able to separate two of the chain of hydatids at which I was working without opening either of them. I washed out the empty cyst cavity in the liver with iodine and water, sewed its opening to the opening in the abdominal wall so as to make a sinus, and closed the rest of the incision in the usual way. Two drainage-tubes were passed through the sinus into the cavity, and the wound was dressed with a large quantity of carbolic gauze. The patient was on the operating table nearly three hours and a quarter. She quickly recovered from the chloroform, and convalescence took place without causing any serious anxiety. The temperature rose to $103\cdot6^{\circ}$ F. in the vagina and the pulse to 120 twenty-four hours after the operation. The temperature then fell and fluctuated between $99\cdot6^{\circ}$ and 101° for three weeks, after which time it was below 100° and the pulse was below 90. There was some difficulty with the bowels during the first nine days; but afterwards they moved freely, and the patient then had only to contend with the weakness natural after such an operation and with some bronchitis. The discharge from the wound was never very copious, but the incision did not completely heal for nearly three months, although long before this the patient had gained strength and put on flesh, and was able to get about freely. She left the hospital in the eleventh week after the operation. She remained under my observation, and soon after she went home the upper part of the right side of the abdomen began to enlarge again, and there was much colicky pain in the abdomen, especially after food. The bowels still required to be assisted by laxatives, but they acted better than before the operation. Menstruation was regular.

The patient was readmitted to hospital on November 20th, 1891, nine months after the first operation. The right costal margin was then much more prominent than the left, the greatest measurement from the spine to the middle line in front being $17\frac{1}{2}$ inches on the right side, and 16 inches at the same level on the left. The scar was very wide at the part where the tubes had been, and was dragged considerably to the right of the middle line. To the left of the scar, and close to the costal margin, there was a rounded swelling measuring about $2\frac{1}{2}$ inches across and standing out about an inch from the surface of the

abdomen. To the right there was a large, smooth, rounded swelling reaching well down towards the pelvis and filling the whole of the right side. These swellings exhibited the thrill on percussion that is characteristic of hydatids; they were evidently in, or closely connected to, the liver, and they were dull on percussion except at their lower margins, which were rounded and partially overlapped by the intestines. Above the costal margin the percussion note was absolutely dull as high as the level of the nipple in front, and was impaired up to the second intercostal space on the right side. The absolute dulness behind was bounded above by a line crossing the middle line at the level of the spine of the sixth dorsal vertebra, and gradually curving downwards on the left. The lungs were very greatly compressed, and there was considerable cyanosis, but I detected no signs of active lung disease, and although there was a slight cough there was no expectoration. The heart's action was fairly good, the pulse usually beating 72 times to the minute. The apex beat was felt $6\frac{1}{2}$ inches from the middle line in the fifth interspace. The temperature was normal or sub-normal. In the right side of the pelvis a small tumour was felt by bimanual examination, exactly resembling an ovarian tumour and about the size of an orange. On December 2nd I carefully opened the abdomen by removing the old scar. After freeing some omental adhesions I exposed the smaller and more prominent cyst. This I aspirated, laid open, and cleared out in the same way as I had treated the liver cyst at the first operation. It contained numerous daughter cysts. When all was clear I made a careful examination of the abdomen and found a number of small tumours low down in the pelvis. I counted five. Leaving them I returned to the liver and cut into the large cyst on its inner side, where it bulged into the one already opened. A very great quantity of fluid and daughter cysts was removed, but the bulk was not measured, as much of it was caught in towels and thrown aside. The size of this cavity may be estimated by the fact that after it was partially collapsed my sponge forceps, which measure $8\frac{1}{2}$ inches beyond the handles, did not reach a large part of the upper and posterior boundaries of the sac. It was with much difficulty that I got the parasitic sac of the main hydatid cyst away. This was very thick and firm, and would not fold up sufficiently to come through the opening until I had many times seized it and brought away small pieces. At last I succeeded in removing the bulk of it in one mass, but many small pieces were afterwards washed away with iodine and water. When the cyst was thus partially cleared the patient was so blue and collapsed that it was out of the question to attempt to remove the other tumours. I therefore sewed the opening in the liver to that in the abdominal wall, and closed the incision, draining the liver cavity and dressing the wound as at the first operation. This second operation lasted an hour and a half. The temperature rose to 102° on the day following the operation and again on the fifth day, the pulse on the first of these occasions being 120 and on the second 96. The respirations were not counted above 32 to the minute. There was an occasional cough and considerable dyspnoea, but very little expectoration, or other evidence of bronchitis. The lung resonance quickly increased, and there was marked tenderness on percussion over the upper surface of the liver for some days. The cyanosis and breathlessness disappeared very gradually, and the feebleness, which was extreme for more than a fortnight, was also slowly recovered from. The bowels again gave a good deal of trouble for a little more than a week, but when they acted freely the patient gained strength more

quickly. The discharge from the liver was very profuse, and at times it contained a great deal of bile. Hydatid membranes escaped in considerable quantity at first, and later at intervals, the last observed coming away on February 13th, 1892, two months and eleven days after the operation. On the twenty-fifth day the drainage tubes, which had already been considerably shortened, were taken out and cleaned. The longest measured 10 inches. They were gradually shortened, and on January 20th one tube was removed. On March 18th there was only one small tube remaining, which measured $2\frac{1}{2}$ inches in length. On March 3rd the patient was allowed to get up, but the wound was still discharging a large quantity of fluid, which was now of a thin, serous character. She went home on April 2nd, four and a half months after the operation. The wound continued to discharge very freely till about Christmas, 1892. About the beginning of December the quantity of discharge began to diminish and the wound healed very quickly and has given no trouble since; it had been open over 13 months. When the wound healed the patient was about three months advanced in pregnancy, and I am inclined to think that the upward pressure caused by the enlarging uterus facilitated the healing of the wound. After the patient went home she had much colicky pain in the abdomen, but she said she felt better while carrying her last child than in either of her other pregnancies. After the child was born the patient became weaker and thinner and had more pain, and on examination from time to time it was evident that the pelvic tumours were increasing in size.

The patient was readmitted on March 6th, 1894. At this time, except for the presence of the cicatrix, the abdomen was quite normal on inspection, but on palpation I mapped out three very tender rounded swellings in the right side, the lowest being close to the pelvis; the highest was the largest and was the size of a small orange. The whole abdomen was resonant on percussion, and the liver dulness began at the level of the fifth rib and ceased a little above the costal margin below. By combined vaginal and abdominal examination I found that there were several cysts in the pelvis, but I was not able to say how many. The lungs were resonant everywhere, but the respiratory sounds were not nearly so free on the right side as on the left, and the patient now frequently suffered from bronchitis. On March 12th, two years and three months after the second operation, I again opened the abdomen, making the incision on this occasion below the umbilicus. The three tumours in the right loin and four in the pelvis were brought out and enucleated. Each consisted of a hydatid membrane, containing very little fluid, but full of collapsed daughter cysts and enveloped in an adventitious fibrous capsule. They were attached to subperitoneal connective tissue and to neighbouring structures. A fifth cyst in the pelvis was so closely connected with the back of the cervix uteri that I cleaned it out and drained it as I had treated the sacs in the liver. The cysts removed varied in size from that of a large orange to that of a duck's egg. Before closing the wound I examined the lower surface of the liver and found some more hydatids under the left lobe, evidently the remains of the chain I had felt at the first operation, but they had considerably enlarged. It was impossible to manipulate these through the incision already made, and I therefore cut directly down on them by a vertical incision a little to the left of the middle line and close to the ribs. Three hydatids were removed from close to the lower surface of the liver, two being about the size of duck's eggs and one the size of a sparrow's egg. The liver seemed to be of fairly normal shape and freely movable, having only

loose adhesions to the scar, the upper end of which was considerably below the lower edge of the liver. Through these loose adhesions I felt a hard nodule which I thought was another small hydatid, but it was enveloped in adherent omentum, and as the operation was already a long one, I thought it unwise to begin what might be a very troublesome and prolonged enucleation. This operation lasted over three hours, but it was not such a severe proceeding as either of the other two, and the patient was not so ill afterwards. During convalescence the highest temperature was 100.8° F. on the fourth day, and the highest pulse was 96 on the second day. The patient was almost free from fever and practically well after ten days, but there was a discharging sinus till June, when the wound finally healed. On leaving the hospital early in June the patient went to a convalescent home for a few weeks, and was very well while there; but after going to her own home she was for long troubled by a cough, sometimes accompanied by considerable expectoration. On October 25th she came to see me on account of a small hernia at the lower end of the incision below the umbilicus. This had been noticed for five weeks, and was no doubt due to the persistent cough. The lungs were not dull on percussion anywhere, but the liver dulness was somewhat higher than it should have been on the right side posteriorly, and the respiratory murmur was everywhere very feeble. There were very few crepitations or râles, and at this time there was little expectoration.

I again saw the patient on February 21st, 1895. She then complained of severe pains in the region of the liver, which had continued for about seven weeks and were very bad during the prolonged frost, but had been rather better since the weather became milder. On examination I found the abdomen quite flat; the incisions measured $3\frac{1}{2}$ inches, 3 inches, and $2\frac{1}{4}$ inches respectively, in the order in which they were made. The patient's cough had been much less frequent, and the hernia, which had been supported by a pad, was smaller and caused little trouble. The liver near the middle line was very tender to percussion and palpation. Through the scar of the second operation I could feel a hard nodule about the size of a bean, which seemed to be the chief seat of tenderness, and I have no doubt this was the hard substance I had felt at the end of the last operation. The liver seemed to be smaller than normal in front, but its dull area extended rather higher than usual behind. The lungs had greatly improved, and, except at the right base behind, the air everywhere entered them freely. Since the severe pain in the liver region began some eight weeks previously the patient said she had lost flesh, and she was very thin. It seemed as if some cyst were developing in or below the liver. I hope to keep the patient under observation, and if there is any further development, I trust that I may be permitted to communicate the sequel.

CASE 5. *Operation for hydatids in a child $5\frac{1}{2}$ years old.*—This case was that of a child $5\frac{1}{2}$ years of age, whose father's father had died from cancer, and whose mother's sister had died from an internal tumour after middle life. The child was one of six—two older and three younger, all being very healthy and strong. A lump in the upper part of the patient's abdomen had been noticed for two years. It was gradually increasing in size and seemed to be the cause of attacks of pain by which the child was occasionally seized. She was under the care of Mr. Soffe, of Harling, in Norfolk, and Dr. Benjafield, of Lower Edmonton, had seen her with him.

As the diagnosis was obscure, Dr. Benjafield brought the patient to consult Mr. Knowsley Thornton, who expressed the opinion that the swelling was a hydatid tumour, and it was arranged that I should operate. When I saw the child there was a tense rounded prominence on the front of the liver, measuring about 2 inches in diameter, and its central part being behind the upper portion of the right rectus muscle. It exhibited a distinct hydatid thrill on percussion. The outline of the liver dulness was not altered, but it was rather lower than is usual even in a child. The patient was the daughter of a farmer who kept and bred dogs, and this child was particularly fond of them, and was especially pleased when playing with the puppies, which are often infested with tapeworms. The child was brought to lodgings near my house, and on April 21st, 1892, assisted by Dr. Benjafield, I cut down upon the swelling, opened a hydatid about the size of an orange, and removed the lining capsule and the daughter cysts. I found that there was a slightly smaller cyst above and close to the first. This was opened and cleaned out through the cavity of the first. On examining the parts around I found a large number of small growths scattered apparently irregularly over the peritoneum. They were about the size of hazel nuts, and I supposed them to be hydatid cysts. Three of them were very slightly attached to the omentum and were removed. I did not cut into these growths for some months, and when I did I found that they were lymphatic glands. They were very large glands, even for a child, and I was then under the impression that lymphatic glands were not to be found in the omentum. I was, of course, prepared to find hydatid cysts in the subperitoneal connective tissue by the conditions I had observed in the case last related. The opening in the liver was secured to the abdominal incision and the sacs were drained by rubber tubing. During convalescence there was little trouble except from the fractiousness of a somewhat spoilt child. The temperature, taken in the groin, and the pulse rose respectively to 102·6° F. and 120 on the second day after the operation. By the end of a week they were down to 97·6° and 96. On the ninth day the temperature rose to 103·2° and the pulse to 120 without any cause that I could discover. The drainage-tubes had been removed, washed, and reinserted some days before, and the bowels had also been moved freely before this time. By the tenth morning the temperature was again down to 97·6°, the pulse to 96, and a temperature of 99° was the highest recorded after this until the child had gone home. The drainage-tubes were gradually shortened, and the patient left London five weeks after the operation, on May 25th. The tube was then about an inch long, and it was finally removed a week later, but the wound did not completely heal till the beginning of August. By this time the child had grown much stronger and stouter, but a short time after the wound healed she complained of much pain in the abdomen and of feeling sick. There was some swelling round the scar, and the abdomen was very hard, but there was little if any tympanites. The patient vomited at times, was disinclined for food and lost flesh, and her temperature rose as high as 102°. Dr. Benjafield saw her with Mr. Soffe, and opium and belladonna were administered, with hot applications locally. On September 13th Dr. Benjafield reported a steady fall of temperature, relief of pain, and improvement of appetite. The attack passed off without further trouble, the patient soon grew fat and strong again, and she has had no trouble since. Lately, two years and ten months after the operation, the child's mother wrote that she is "perfectly well and strong, and never has an ache or a pain." The cause

of the attack of fever and pain four months after the operation in this case is obscure. I am inclined to think that as the child grew stronger the adhesions of the liver to the abdominal wall became gradually weaker by the constant movements of the parts on each other, and that the liver finally broke loose by a rapid rupture of the remaining adhesions. If this explanation is correct, the child's liver is probably as free now as if there had been no operation.

CASE 6. *Operation for 789 stones in the gall-bladder.*—The first patient on whom I operated for gall-stones had consulted Dr. Stephen Mackenzie and Mr. Knowsley Thornton, both of whom had diagnosed the presence of calculi and had recommended operative treatment. The patient was admitted to the Samaritan Free Hospital under my care on June 20th, 1892. She was a healthy, strong woman 58 years of age, but had suffered from frequently recurring attacks of pain in the region of the gall-bladder for three years. These attacks began with a very severe one, lasting a week, but not accompanied by sickness or jaundice. A year later, in July, 1890, there was another severe attack, with sickness, jaundice, and clay-coloured stools. The condition of the urine was not noted. This attack ceased suddenly, and after it two small calculi were passed by stool. The patient was free from pain for some months, and then had frequent slight attacks with varying intervals. In February, 1892, she had intense pain for a day and a night, ending, as most of the attacks had done, suddenly. After this the patient never felt well, having always a sense of discomfort and often a dull aching in the hepatic region. Jaundice had only been present on one occasion. There was nothing that seemed to bear on the patient's condition in her family history. She came of a healthy stock, and except for the conditions described and for constipation her own health was excellent. On examination by inspection and by percussion there was nothing abnormal in the abdomen, and by palpation I could not detect any enlargement of the gall-bladder, but in its situation there was some tenderness which varied from time to time, being sometimes diffused over a considerable area, and sometimes hardly present at all. There was always one tender spot on deep palpation, and I judged that this was about the situation of the common bile-duct or cystic duct. The patient wished to go to visit a son in a part of Canada where she would be out of the way of medical assistance, and this was taken into consideration in advising her to submit to operation. On July 12th, 1892, I cut down upon the gall-bladder and found it enlarged but flaccid. On grasping it between my fingers I could bring its opposite sides together, and here and there I could feel and catch hold of a small stone. The impression I got was that there were very few calculi, but when I had drawn off about an ounce of bile by means of an aspirator, I found that there was a very large number of stones in the bladder. I made an incision in the fundus and cleared out the contents of the gall-bladder by means of forceps, a lithotomy scoop, and sponges. The opening in the gall-bladder was fixed by silk sutures to the abdominal wound so as to make a fistula. The rest of the incision was secured in the usual way, and the gall-bladder was drained by means of a rubber tube. Of course, great care was taken to prevent fouling of the peritoneum. There were 789 stones collected and counted. The largest was broken. It measured about three-quarters of an inch in its longest diameter, and was of irregularly rounded shape. The greater part of the stones were smaller than a split pea, many were smaller than hemp seeds,

and the total bulk in fluid measure when they were dried and well shaken down was a little over an ounce. Besides those counted there were innumerable very small calculi which came freely through the aspirating needle and were seen as mere specks in the bile. Convalescence was very smooth. The temperature rose to 101° F. before midnight of the day of operation, and it was never above 100° in the vagina after the second day. The highest pulse was 80. There was at first a copious discharge of bile, but after a fortnight it diminished greatly. The tube was removed on the twenty-fifth day. There was very little discharge after this, and the patient went home a month after the operation ; but it was about three weeks longer before the wound finally healed. The patient gradually regained her strength. I last saw her at the end of August, 1893, 13 months after the operation. She was then about to start for Canada, having been detained by the illness and death of a son, which had entailed on her much work and worry, but there had been no recurrence of gall-stone symptoms. [Since this paper was read I have heard from the patient that she continues well.]

CASE 7. *Operation for gall-stones.*—The next case was that of one of Mr. Alban Doran's patients, but he has kindly permitted me to record it here, as I had charge of the case and performed an operation on the patient during his temporary absence. "A woman, aged 42 years, a widow, came under my care at the Samaritan Free Hospital in October, 1893. She was a laundress, tall and once strong. On August 4th, 1893, she lifted an unusually heavy basket of linen. Three days later she was seized with abdominal pains, vomiting, and sweating. There was no jaundice. After resting three weeks in bed she went to work. Early in September another attack of pain came on, without sickness. Dr. Nias and Mr. Arathoon attended her at the Marylebone General Dispensary. She recovered from the pain, and I saw her on October 10th. There was a swelling in the region of the gall-bladder. On October 14th a severe attack of pain occurred. On the 19th the patient was admitted. An attack occurred on October 22nd. The swelling grew larger, and the skin over it became reddened. In a few days the pain went away, but the redness increased, and the integuments were oedematous. I suspected obstruction of the gall-ducts. Mr. Knowsley Thornton, who kindly examined the patient, was of a similar opinion, though he thought that possibly the swelling might be an inflamed hydatid cyst. On November 7th I, assisted by Mr. Malcolm, made an exploratory incision along the outer border of the right rectus over the middle of the swelling. I found under the muscular layers an irregular cavity containing pus, clots, and shreds of broken-down tissue. There was hardness behind the cavity. A pocket trocar and cannula was thrust into the hard surface, but nothing oozed out nor did the trocar touch anything that felt like a calculus. I then believed that the cavity might represent an abscess in the abdominal walls, developed early in August after a bruise from a heavy clothes-basket. I washed out the cavity with iodine water and drained it. I did so, believing that if the disease was simple abscess it would thus be cured ; if it were more than abscess further operation could be more safely undertaken when the cavity was rendered aseptic. For a few days the patient seemed to be better. I then, on account of severe indisposition, left her in Mr. Malcolm's charge."* At this time the patient was not jaundiced. The abscess gradually contracted until

* Mr. Doran has kindly written for me the portions in inverted commas.

only a sinus remained, but this showed no tendency to heal, and a thin mucous fluid oozed up from the bottom of the wound. On examining the parts towards the end of November I discovered that I could pass a probe through the wound into the gall-bladder, which was evidently full of stones. It was arranged that I should remove them, and on December 2nd I enlarged the opening upwards and extracted a number of stones, but, when I had removed all I could find, no bile escaped. It was evident that if I did nothing more the secretion from the gall-bladder would prevent the closing of the fistula, and but little, if any, good would result from the operation. I therefore made a free incision upwards and downwards about $3\frac{1}{2}$ inches long, opening the peritoneum, separating the adhesions of the bladder to the abdominal wall, and cutting out the track of the fistula. It was still impossible to handle the gall-bladder because the omentum and transverse colon were adherent to it and to the lower surface of the liver. These adhesions were also separated until I could manipulate the gall-bladder freely. By means of the fingers outside the bladder, and a finger or instrument in it, I found and extracted some more stones, making 134 in all. The smallest of these was about a quarter of an inch in its longest diameter; most of them were rather larger than this, and three or four measured half an inch across; one large one was broken. Still no bile escaped, and although I explored thoroughly all the under surface of the liver and the parts along the course of the ducts I could not find any other stones. I was, therefore, reluctantly compelled to close the wound, the gall-bladder being fixed and drained as in the previous case. In this instance I also inserted a glass drainage-tube into the right loin pouch of the peritoneal cavity to remove quickly any discharge from the divided adhesions. Very little serum escaped through this tube, and it was removed 40 hours after the operation. The highest temperature after operation was 101° F. on the first day, the pulse did not rise above 100, and the fever quickly subsided. There was very little discharge from the gall-bladder at first, but after the third day it increased and was distinctly tinged with bile. On the sixth day some fragments of stone escaped, and on the ninth day the dressings were soaked with bile. On the tenth day another piece of stone, nearly as large as a pea, was found in one of the drainage-tubes, but now no bile escaped; and after this there was never more than a tinge of bile occasionally in the discharge, which was again scanty. Mr. Doran resumed the charge of the case on December 19th, and "the patient was discharged in the middle of January, 1894, with a fistula. She called on me occasionally. She was readmitted in May. As the fistula had not closed, and as a hard body could be felt by the probe and the attacks of pain continued, I operated on May 26th, assisted by Mr. Malcolm. First I passed a long probe up the fistula. The patient was well under chloroform, yet I could not feel anything like a calculus, though two days before I had made the probe touch a body which felt precisely like a gall-stone. I opened the upper part of the old cicatrix and cut through the fistula in the parietes. After cautious probing I found that the gall-bladder could be entered. By means of a probe-pointed hernia knife the fistulous opening was enlarged. The finger could be then passed into the fundus of the gall-bladder, which was found to be just below the level of the fistula. Therefore I cut upwards to the extent of an inch and a half. Then I passed in my right forefinger and felt a small stone. By manipulation it was extracted. Then I passed a child's lithotomy sound and found the cystic duct dilated with calculi. I pressed my fingers on

the parietes immediately over the upper end of the wound and pushed the stones forward into the gall-bladder. They were then extracted with long-handled forceps. They were two in number, one an eighth of an inch in its longest diameter, the other over half an inch and much faceted. I then passed the lithotomy sound 4 inches up the bladder and duct, reckoning from the wound on the surface of the bladder. After deliberate exploration no calculi could be felt. A stout red rubber tube was placed in the bladder, the thick edges of the wound were united with silkworm gut sutures, but the walls of the gall-bladder were not included in the sutures as they adhered firmly to the parietes. The wound was dressed with alembroth gauze; towels covered externally by a mackintosh were placed over the part and round the right flank. The operation was concluded at 10.35 a.m. Free oozing took place; at 7.20 p.m. it was simply sanious, but at 9 p.m. bright green bile escaped. At 9 a.m. on May 27th much yellow bile came away. On the morning of the 28th the temperature reached its highest, 100.2° in the axilla; a very free discharge of bile occurred; the patient then declared that she was at last absolutely free from pain. After the 29th the temperature fell to normal. On June 16th the patient left the hospital; the fistula had closed. On July 17th I saw her; she was in good health; there was neither pallor nor jaundice, nor swelling in the region of the gall-bladder. On October 19th she had a severe attack of pain, followed by jaundice next day. On the 24th I saw her; the jaundice was passing off. The fistula remained closed. Early in December I saw her again; she had felt local pain on the day before. On December 28th the patient was seized with severe pain in the region of the gall-bladder; next day her friends noticed that she was deeply jaundiced. On January 1st, 1895, she felt better and came to see me at the hospital. The conjunctivæ were yellow. No enlargement of the gall-bladder could be detected. A few days later she was attacked with bronchitis and was laid up nearly a month. There was much local pain all the time. After getting up and working for a few days she felt a sharp attack of pain; no jaundice was observed, and the suffering soon passed off. On February 21st I saw her again. She had grown thinner, but her complexion and appearance were healthier than at any other time since she had been under treatment. On June 15th, 1895, she visited the hospital in excellent health, free from jaundice and pain. The fistula remained closed."

At the last operation Mr. Doran suggested that the large stone he removed might have come down the hepatic duct after my operation, and it seems to me almost impossible that a stone of irregularly rounded shape, and more than half an inch in diameter, could have been passed over in the thorough examination which I made if it were anywhere outside the liver. Moreover, it would appear from the history that other stones had been left after Mr. Doran's last operation. There is also evidence to support the view that the bile ducts may be dilated within the liver substance and may form a receptacle for calculi. Mr. Knowsley Thornton has put on record a case in which he removed over 400 stones from a cavity in the liver close to its anterior surface—a cavity which from its situation must have been a dilatation of a comparatively small duct. On the other hand, in the case under consideration it is obvious that from the commencement of the patient's illness until the bile flowed freely from the wound after Mr. Doran's last operation the chief trouble was due to obstruction of the cystic duct, and that during the whole of that time there was only occasional obstruction of the hepatic or common

bile-ducts. There seems to me to be a considerable weight of evidence in favour of the view that when the patient lifted the heavy basket in August, 1893, the big calculus which Mr. Doran removed at the third operation was forced into, and became jammed with others in the cystic duct, and that I failed to discover them. The difficulty in this case is not unique, for from what I know of other men's work there can be no doubt that stones of considerable size may quickly pass down the hepatic duct, or that they may be hidden away in corners of the ducts in a most extraordinary manner.

CASE 8. *Operation for four gall-stones found respectively in the gall-bladder and in the cystic, hepatic, and common ducts.*—The last of these cases was that of a woman who was under the care of Dr. Tresilian, of Enfield, and she sought advice mainly on account of yellowness of the skin. She was 28 years of age, had been married nearly five years, and had no children. Early in 1892 she had had an attack of pain in the region of the gall-bladder, lasting a few hours, accompanied by slight jaundice, and followed by discomfort for a week. She got quite well, and remained so till December 11th, 1893, when she had another and more severe attack of pain lasting three days. This was accompanied by jaundice, the absence of bile from the stools, and its presence in the urine. These symptoms did not pass off, and the patient began to lose flesh. In January, 1894, there was another attack of pain followed by a constant aching in the hepatic region. The patient was admitted to the Samaritan Free Hospital on February 12th. Constipation was then extreme, but a stool passed the day before the operation, although very pale, was not absolutely devoid of bile. The gall-bladder was felt distended and tender, and the liver dulness was slightly enlarged. The patient was not a strong woman; she said she had had rheumatic fever four times, and there was a slight, harsh systolic aortic murmur. Otherwise she seemed fairly healthy, but was of nervous type. Her mother was supposed to have shown symptoms of gall-stones. On February 17th I opened the abdomen over the gall-bladder. There was no adhesion to the abdominal wall, but the omentum was extensively adherent around the gall-bladder. After separating the adhesions I opened the bladder. It contained no bile, but about an ounce of white secretion and two stones. The first of these was barrel-shaped, with a facet at each end, although there was no sign of a stone having been placed in front of it. Probably before the ducts became occluded, when the gall-bladder was liable to distend and collapse, this stone occasionally changed its position, sometimes one end and sometimes the other being opposed to the deeper calculus. The second calculus was of a similar shape, but its inner end had two facets on it, and was therefore somewhat wedge-shaped. These stones were removed with the greatest ease. After I had sponged out the fluid in the gall-bladder I passed a finger into it, and by manipulation with the fingers of the other hand in the peritoneal cavity I felt two openings very far back in the cavity of the bladder, and could touch a stone in each, whilst outside the bladder I could define these. I judged that my finger was in the dilated cystic duct, the curves of which had been to a great extent straightened, and that I felt one stone in the hepatic duct and one in the common bile duct, both these stones being of elongated shape. I attempted to remove the lower one, but it was necessary first to dilate the opening. In endeavouring to pass a forceps into the duct I suddenly found that I was able to push its

closed blades a considerable distance onwards, and after this I could not find the stone. A careful examination failed to show any sign of rupture of the duct, and therefore I presume that the stone was pushed into the bowel. It was never found in the stools although carefully watched for, but possibly it was broken up by the forceps into small fragments. I next endeavoured to get out the upper stone, but although I could feel the lower end of it distinctly, I failed by any means that I tried to extract it until I enlarged the opening upwards with a knife, in doing which I pierced the stone, and it at once broke into many pieces. Almost immediately after the stone broke bile flowed into the bladder, and this facilitated the removal of the fragments. When these had been extracted or pushed out by the fingers in the peritoneal cavity, the fundus of the gall-bladder was sewn to the edge of the external wound, and a drainage-tube was inserted as in the two other cases. In this case also I placed a glass drainage-tube in the loin pouch. Convalescence was uneventful. The highest pulse was 96. The temperature in the vagina rose to 101.4° in the evening of the second day after the operation, but came well down, as low as 99° F., on the fourth day. On the fifth day the patient's condition was satisfactory in every respect. A saline purge was administered in repeated doses, and was followed by sickness, distension, abdominal pain, and a rise of temperature to 101.2° . All attempts to move the bowels by purgatives were stopped, and although the patient vomited a great deal of green fluid, the sickness gradually ceased, the temperature fell, and the pain passed off. On the seventh day some very hard masses of fæces were passed after an enema had been administered, and the bowels gave no further trouble. The glass tube was removed 48 hours after the operation. There was little discharge of bile from the wound at any time, the urine quickly ceased to contain bile, the stools became normal, and the jaundice very slowly disappeared. The patient went home three weeks after the operation, but it was six weeks before the wound healed, and it reopened four times, discharging a little matter and quickly healing again each time. The last occasion was in July. On February 22nd, 1895, more than a year after the operation, the cicatrix was merely a line with a slight pucker at the point where the drainage-tube had been, and was quite free from irritation. The patient had a very sallow complexion, and she said that this was sometimes more obvious than at others. She had had no pain in the region of her liver since the operation, and had been able to do her house-work without trouble. She said that she sometimes felt depressed and lazy, when a purgative would put her all right again. I think there is no doubt that she had been neglecting to attend to the condition of her bowels.

The difficulties illustrated by these cases may be divided into those of diagnosis and those of manipulation.

Difficulties of diagnosis may be insurmountable except after an exploratory operation, and, as in my first case, it may be impossible to make a definite diagnosis even after the abdomen is opened. Such cases must be rare, but the diagnosis between malignant disease and gall-stones is often extremely difficult and is of the utmost importance. The difficulty and the importance of making an exact diagnosis are increased by the fact that the two diseases

are not unfrequently found together, and that there seem to be grounds for believing that the irritation of gall-stones may be the cause of a malignant growth, just as irritation of the lip, rectum, or scrotum, may induce cancer in these parts. If this be a fact, it constitutes a strong argument in favour of a resort to operative treatment in all doubtful cases, and against delay when a definite diagnosis of gall-stones is made, and when the patient is permanently or repeatedly and seriously inconvenienced by them, although life may not seem to be immediately threatened. In favour of operation in these cases, there is also the fact that gall-stones sometimes, by persistent pressure, ulcerate a way through the ducts without giving rise to alarming symptoms until a great deal of mischief has been done.

On the other hand it must not be forgotten that the removal of gall-stones is, or rather may be, a very dangerous proceeding. If the operation were always as simple as in the first case I have related, the surgeon would have little hesitation in recommending the removal of calculi whenever the symptoms were troublesome. There are, however, in these operations not only certain dangers which the patient must undergo in every case of abdominal section, but, if it is difficult to diagnose the existence of gall-stones, it is far more difficult to say in what particular part of the ducts they may be situated, and what particular steps will be necessary for their extraction. Another argument against a too hasty resort to operation is to be found in the fact that a spontaneous cure is not uncommon. A short time ago my colleague, Dr. Amand Routh, asked me to see a woman with a greatly enlarged gall-bladder and symptoms pointing to the presence of a calculus in the cystic duct. We examined the case together and recommended an operation. There was, however, no great urgency, so we sent the patient home, telling her to keep quiet in bed, and she was admitted to hospital a week later. At this time the gall-bladder was not to be felt, and the patient told me that the lump had disappeared on the day after her first visit. Such an experience must have come under the observation of many of the Fellows. Nevertheless, when a patient is seriously ill, and especially if there have been repeated attacks of gall-stone colic, it seems to me unwise to lay any stress on the argument that a spontaneous cure may take place. We cannot possibly tell whether it will or not, and while the patient is waiting for such a possibility, serious mischief may be done.

Difficulties of manipulation are well shown by the hydated case on which I operated three times, and by the two last gall-stone cases. If it be a fact that gall-stones may come rapidly down from a dilated portion of the ducts in the interior of the liver, it is obvious that the complete removal of them may sometimes be impracticable. The possibility of such a rapid descent of stones from the inner ducts is a strong argument against the practice, advocated by some, of sewing up the wound in the gall-bladder and dropping it back into the peritoneum after the removal of calculi. This is theoretically the most perfect operation, but when the method by the formation of a fistula can be carried out it is safer to adopt that plan.

Concerning the dangers to be avoided, I take it that it would be out of place in this Society to insist on the necessity for the careful use of antiseptic precautions. In liver surgery, unless—as in cases of multiple abscess—when the parts are thoroughly poisoned before the surgeon sees the patient, it is usually possible to avoid septic mischief. The surgery of the liver is also to a great extent free from those dangers of abdominal surgery which are due to irritation and obstruction of the bowels. The gland and its ducts are completely shut off from the more mobile parts of the gut by the disposition of the transverse colon and its mesentery, so that it is usually possible to prevent the small intestine from being exposed to, and, therefore, from the risk of becoming adherent to, raw surfaces, whilst any adhesions of the colon which take place are not likely to interfere with its lumen, and are, therefore, comparatively harmless. I may here point out that these advantages are also obtained in many cases of intra-peritoneal operations for the removal of the kidney, for if this organ be approached from outside the colon, any raw surfaces made are little liable to come in contact with the small intestine.

The disposition of the colon and its mesentery under the liver also makes the drainage of the parts comparatively easy, and thus greatly facilitates treatment by operation. The dangers of septicæmia and the dangers from intestinal troubles, which are constant factors in all abdominal surgery, and which cannot be neglected with impunity, have been completely avoided in the cases I have related.

The danger of hæmorrhage can scarcely be said to be illustrated by these cases, but in the first of them the bleeding from the

puncture wound was really alarming for a time, although I was well acquainted with the fact that small wounds of the liver bleed freely at first and have a tendency to stop spontaneously, or on the application of pressure. I have only once seen a wound of the liver that threatened to continue to bleed to a dangerous extent. It was a tear about an inch long in the edge of the liver made in separating an adhesion to a large tumour of the uterus, and even after sponges had been packed against it during the greater part of a long operation, the hæmorrhage was much too free to be left unheeded, when I was ready to close the wound. With a fine needle I passed a piece of silk three times through the liver substance half an inch from its edge, and at intervals of about a third of an inch. The silk was made firm, but, of course, was not drawn so tight as to tear the liver substance, and the bleeding was at once arrested without any subsequent trouble to the patient, who is now quite well, two years having elapsed since the date of the operation.

The dangers of shock were brought prominently before me by the first case of hydatids that I have related. If I had attempted to remove or clear out all the hydatids I could find at the first operation, there can be little doubt that the patient would have succumbed before I had finished. Nevertheless, I have long been of the opinion recently expressed by König* that, within reasonable limits, a prolonged laparotomy does not necessarily lead to a serious degree of shock—that the danger of death from shock depends more on what is done than on the time taken in doing it. Of course I fully recognise that the condition of the patient is of the utmost importance in this connection, and that at times it may be wise to sacrifice a great deal to speed in operating.

As an illustration of the view advocated, I may point out that in the first case of hydatids above recorded the second operation was by far the most dangerous of the three, although it only occupied about half the time required for either of the other two.

These difficulties and dangers have occurred to me as being those most obviously suggested by the cases I have related, and in conclusion I would suggest the following points for discussion:—

1. The evidences by which we can diagnose gall-stones from cancer.

* 'Centralblatt für Chirurgie,' No. 4, quoted in 'Brit. Med. Journal,' Epitome 1895, vol. i, p. 26.

2. The possibility of gall-stones being overlooked in the ducts, and the possibility of their collecting in the ducts within the liver substance and rapidly descending after other stones have been cleared out of the gall-bladder or lower ducts.
3. The length of time after infection at which a patient may be considered safe from a further development of hydatids.
4. The fact that in the third operation on my first case of hydatids, I removed a number of cysts in which the daughter cysts were shrivelled up as if dead, although the tumours had been growing very recently, and had shown no sign of a diminution in their size immediately before the operation.

Mr. DORAN observed that at the second (December) operation the author had dissected up the gall-bladder so that he could pass the fingers in all directions, and had also explored the bladder internally, probing the ducts. After the operation the obstruction seemed to have completely ceased. Mr. Doran concluded that the big stone (which he held in his hand) could not have been in the gall-bladder or the cystic duct at the time of the operation in December, *i.e.*, six months before he himself had removed it. The question he would like to put to physicians and pathologists generally was as to how long a time it took for gall-stones to form? Such a stone as he held in his hand was not an easy thing to miss, and he raised the question as to the possibility of its having formed between December and the following May. It might, on the other hand, have been in an hepatic duct or in some dilatation of the liver ducts when the December operation was performed. If anyone took the view that it was in the hepatic duct at that date, he would have to account for its facets, which must have been due to the pressure of other calculi. If this big calculus had formed in an hepatic duct since the operation, how did it become faceted? By studying this aspect of the case the author and Mr. Doran might arrive at a useful conclusion as to the treatment of such cases in the future. They had examined this patient last week, and she was at present quite well. Mr. Doran asked whether, with this great uncertainty as to the formation of gall-stones, it was good practice to remove the gall-bladder? He had mentioned this case to Mr. Mayo Robson, who had remarked that cholecystectomy was not necessarily harder after cholecystotomy. After the first operation so much inflammatory deposit formed outside the gall-bladder that cholecystotomy became practically an extra-peritoneal operation. The useless gall-bladder could be shelled out of its bed without interfering with any other abdominal organ.

Mr. ARBUTHNOT LANE said it had been his good fortune to operate on a large number of cases in which the demand for surgical interference arose directly or indirectly from the presence of gall-stones. He concluded that the diagnosis in these cases was easy and the results of surgical interference good, provided, of course, that the patient had not been allowed to lapse into a hopeless condition. As this form of surgery was in its infancy, surgeons would probably continue to be called upon to act in cases in which, owing to delay, the prospects of success from

operation had become very small. Yet the medical attendant, in deciding as to the advisability of recommending an operation, would necessarily be influenced by these unfavourable cases in which the failures could not fairly be laid at the door of surgery. Gradually, however, the body of the profession would become familiar with the signs and symptoms of the cases in which the surgeon could render service, and would learn to recognise the excellent results which might be obtained by timely intervention. It was less pleasant to relate one's failures than one's successes, but the former were often most instructive. He, therefore, proposed to bring before the Society brief notes of his unsuccessful cases, when it would be seen that in only one did death result from a condition which at the present time might justly be regarded as avoidable :—

About three years ago I operated on a female patient who had suffered from a stone in the common hepatic duct for several years. The stone could not be crushed, and had to be removed by incision. The opening in the duct was closed with difficulty—I fear imperfectly—and a large glass drainage-tube placed in the pouch in its vicinity. She died on the third or fourth day somewhat unexpectedly. I did not see the patient after the operation, and what meagre details I gathered led me to assume that death probably resulted from peritonitis. I may say that this is the only case of this kind in which I have relied solely on a glass drainage-tube, and I have little doubt in my mind that had I at that time been familiar with the use of gauze packing, my patient would not have succumbed. For this death, then, I consider my treatment responsible, but it was the best I knew of at the time.

The second case was that of a man who had been jaundiced for about 14 years, and who was subject to frequent exacerbations of the jaundice with fever and considerable prostration. He was much emaciated and very feeble. I found the gall-bladder full of bile and the common hepatic and common bile ducts filled with stones. Owing partly to difficulty of access and partly to anxiety about his condition on the table, I rapidly established communication between the gall-bladder and duodenum by means of Murphy's buttons, considering that as there was much bile present in the gall-bladder it might continue to pass in sufficient quantity through that cavity. His colour and condition improved somewhat after the operation, but only for a time. The button was passed in a fortnight. At the end of two months all but two days after the operation he became suddenly worse and died in a few hours. At the *post-mortem* Dr. Perry found a small perforating ulcer in the duodenum proximal to, and at some distance from, the fistulous communication, for the cause of which he was unable to give any definite explanation. The ducts in the liver, as well as the common hepatic and common bile ducts were stuffed with a large number of calculi. It is obvious that at this late stage no surgical measure could have been of any avail.

The third case was that of a woman who had been deeply jaundiced for four years. She came into Guy's Hospital in a very feeble condition, being delirious during the greater part of the three days following her admission. The colon was fixed to a shrunken gall-bladder. Several large stones were removed by incision from the common bile duct—one large one, however, slipping up into the right hepatic duct out of reach. A rubber tube was placed in the duct and gauze was packed about it. Though she bore the operation very badly, the free escape of bile through the tube seemed to improve her condition during the two days after the

operation, but on the third she lapsed into a very feeble state, and died on the fourth. Here again, though the operation telescoped slightly the duration of her life, it could hardly be made responsible for her death.

One thing is pretty obvious, namely, that patients who have been jaundiced for long and who show signs of delirium do not lend themselves readily to surgical interference. We want to get hold of these cases before such dangerous and almost hopeless symptoms develop.

The fourth case is one of such considerable interest and rarity that I intend publishing it in the 'Transactions of the Clinical Society.' The patient was a woman who had suffered from jaundice for four or five months. Four days before I saw her, while straining violently at stool, she felt a sudden tearing pain in the region of the gall-bladder, which rapidly became excruciating. A large tumour developed in this position. Her condition became rapidly worse after this, and when I saw her she was practically moribund. I explored the abdomen at once, and found that the gall-bladder, with the common bile and hepatic ducts, were enormously distended with blood clots. After death this was seen to have resulted from a rupture extending through the gall-bladder and adjacent surface of the liver, the ducts in the liver also being distended with blood clot. Here again the operation was in no way responsible for her death, but was undertaken on the bare chance of its affording her some relief.

Mr. HENRY MORRIS, in regard to the author's cases of hydatids of the liver, observed that the existence of several cysts was a point of great importance in prognosis and treatment. Some years ago he had operated on a case, which he had seen with Dr. Powell. One cyst was cured by tapping, another by incision after failure of tapping, and a third cyst was removed by operation *ab initio*; still there were other hydatids in the abdomen, and these went on gradually developing. It was nevertheless remarkable how long the patient lived and how well he seemed to be. One of the cysts was in the left lobe of the liver, another in the spleen, others were disseminated in various parts of the omentum. The man was a baker, and absolutely declined any further operation, and Mr. Morris did not feel at all sure that his life was not just as comfortable and quite as prolonged as if other operations had been performed. These cases of multiple cysts were probably very unfavourable for operative treatment, owing to the tendency of small cysts to increase and for new ones to develop. Speaking with regard to hydatid cysts of very large size, Mr. Morris said he had on one occasion to operate on a case which, like one of the author's, presented a great resemblance to an ovarian cyst; it had, indeed, been tapped on that assumption in another London hospital, and a clinical lecture was given upon it by a member of the staff as a typical case of ovarian dropsy. When Mr. Morris operated, by an incision in the median line, he turned out an enormous quantity of hydatid daughter cysts. The parent cyst practically filled the abdomen and grew from the under surface of the liver. It also reached down into the pelvis, filling Douglas's pouch and its connection with the fundus and back of the uterus, and other structures in the deep pelvis were so tenacious that they could not all be separated. He removed the greater part of the cyst and stitched the edges of the hepatic portion to the abdominal wound, but the patient subsequently sank from shock. With reference to the cases of gall-bladder surgery Mr. Morris remarked that there was still much to be learnt as to the time it took for a gall-stone to form. He inclined to the

opinion that many of these stones arose from obstruction in the ducts, and he thought the rapidity of their formation depended upon the rapidity with which the mucus and cells cast off by the walls of the obstructed gall-bladder or ducts underwent degeneration into cholesterin. Many such stones were doubtless formed within the small biliary tubes of the liver, while others were unquestionably formed in the gall-bladder. If anything interfered with the due relation between the elements of bile which were solvents of cholesterin, namely, the biliary salts, and the amount of cholesterin to be dissolved, *i.e.*, if there were a disproportionate amount of cholesterin in the bile pent up in the ducts or gall-bladder, there would consequently be comparative rapidity in the formation of such concretions. If bile were stationary in the gall-bladder or in the ducts, and the cells from the mucous membrane were rapidly detached, it would undergo changes which would increase the quantity of cholesterin and tend to the rapid formation of calculi. He had no doubt that many stones which came away after cholecystotomy had been performed were formed subsequent to the operation. In a case which he had reported in the 'British Medical Journal' (February 2nd, 1895), he had removed at the time of operation 49 stones from the gall-bladder of a lady. These stones were so tightly packed that he had great difficulty in dislodging the first one. He had examined carefully the ducts and the interior of the gall-bladder without discovering other stones. Yet in the course of the next year or two this patient passed several calculi through the fistula, and on one occasion he had removed 11 calculi at a sitting from the fistulous track. He had no doubt that these stones had formed from the deposit of cholesterin from the walls of the gall-bladder. He did not consider that the presence of the facets on Mr. Doran's stone was of very great significance. They might be produced by the churning of that stone and the two smaller ones removed at the same time in a mixture of mucus and bile. The question as to the rate of formation of biliary calculi was one of great interest. They were in ignorance as to how gall-stones were really produced. No doubt fresh light would be thrown on the subject now that surgeons had turned their hands to operating upon these cases, and with such success. He added, however, a word of caution with regard to the degree of success that attended operations in these cases. Mr. Lane had been candid in giving them his unsuccessful cases, but he thought Mr. Lane had expressed the general results in rather too "*couleur de rose*" a manner. Although many operations undertaken for this purpose were very successful, there were others in which the results were unfavourable and the operations very difficult. Thus, if the gall-bladder is very contracted, with stones in the common duct, and with long standing jaundice, the results of operation are by no means favourable, and both the immediate and remote risks are considerable. Many such patients died, if not from hæmorrhage or shock, yet from peritonitis or from their inability to meet the requirements of repair. It is well known how troublesome it is to check hæmorrhage in persons whose blood is saturated with bile. When there is no jaundice, when the gall-bladder forms a distinct tumour, and the calculi are contained in the gall-bladder or cystic duct, Mr. Morris agreed that there is no branch of abdominal surgery more easily performed or in which there is a greater degree of success attainable.

Mr. GODLEE, referring to the mode of origin of gall-stones, said he had once opened a small tropical abscess, or what was thought to be such,

through one of the lower intercostal spaces in front, in a gentleman who had been in India, and in it he had found a number of small stones marked with facets, though they were in a much larger cavity than they could possibly fill. In illustration of the difficulties of diagnosis, he alluded to the case of a patient under his care some years ago at Brompton Hospital. She had a tumour in the right lumbar region, the nature of which was extremely doubtful. He cut down upon the tumour, and no doubt made a mistake in diagnosis. He found the transverse colon adherent to the gall-bladder, and on separating these adhesions he felt a solid tumour occupying the place of the gall-bladder and another small one in the liver. He thought the tumours were malignant, and so closed the wound and gave in consequence a bad prognosis. The patient went on for two years suffering, as before, from pain and constipation, and then she passed a large gall-stone and the tumour disappeared. What had become of the other hard mass he had felt, he did not know. It might have been a smaller stone lodged in one of the ducts of the liver, or possibly might even now turn out to be a new growth.

Mr. MALCOLM, in reply, said that Mr. Doran and himself were not quite at one with regard to the case they had had in common. It had seemed to him that there never had been any prolonged obstruction of the hepatic or common bile ducts. The jaundice had never lasted more than a few days, and the whole trouble seemed to be due to an obstruction which was persistent in the cystic duct from the beginning of the illness when the patient lifted the heavy basket in August, 1893, until the healing of the wound after the third operation in March, 1894. His own impression at the time was that he had overlooked the stone in question at the second operation. In one of Mr. Lane's cases it was stated that he had been able to push up a calculus which disappeared into the ducts within the liver substance, and that case encouraged the idea that the stone which Mr. Doran had subsequently removed might have come down after his (Mr. Malcolm's) operation. Mr. Morris had also expressed the view that calculi might form very rapidly, and this was another possible explanation of the presence of the big stone removed by Mr. Doran. Mr. Malcolm thought the fatal cases referred to by Mr. Lane added greatly to the interest of his paper, and that they showed that these cases were not always easy. He pointed out that in Mr. Morris's case of multiple hydatids, the parasites appeared to have been entirely confined to the organs and tissues in the abdominal cavity, as in the case related in the paper.

A CASE OF MICROCEPHALUS, TREATED BY LINEAR CRANIECTOMY.

By WM. WALLIS ORD, M.D., M.R.C.P., and EDWARD COTTERELL,
F.R.C.S. Eng.

DESCRIPTION OF THE CASE BY DR. WALLIS ORD.

L. S., a female child, aged 19 months, was first seen by me on July 28th, 1893, at the West End Hospital for Nervous Diseases. She was kindly transferred to me by my colleague,

Mr. Work Dodd, to whom I am indebted for the ophthalmic notes on the case. She had been brought to him on the previous day, because the mother feared that the child was losing her sight.

The family history was as follows:—

There was no history of insanity or any nervous trouble either on the father's or on the mother's side. The mother had had three miscarriages, then two living children, of which the patient is the younger. The other child is "nervous," but is otherwise in good health.

The child was born at full term; there was no difficulty at the birth, and no instruments were used. The mother describes her as "a beautiful baby" till 13 months old, when she had "influenza and inflammation of the tonsils," followed by "gastric fever." In April, 1894, when 16 months old, she was suddenly seized with fits. These fits, as far as can be made out from the history, were general convulsions, not localised or unilateral, but marked by an extreme degree of opisthotonos. She is said to have had 60 fits in five days. When these fits passed off the child began to waste, and her health became variable. On some days she appeared quite well, on others languid and unable to move. The mother thought that she was losing power in her limbs, and about six weeks after the fits she thought that the child, which had been previously bright and intelligent, did not "take notice" as much as formerly. This symptom increased, and, finally, the mother was induced to take the child to the hospital on this account.

When I first saw the child she was fairly well nourished, but in a very feeble condition. She was quite unable to maintain a sitting position for any length of time, quickly tumbling over in any direction, backwards, forwards, or sideways. She had no idea whatever of standing or walking. The normal relations of size between the cranial cavity and the face, as seen in young children, was reversed, the face region being proportionately much larger than normal, as compared with the cranial region. This difference was not of an extreme type, such as may be seen in an idiot asylum, but was so marked as to attract immediate notice. There was no trace whatever of any fontanelle, and I will here draw attention to a most important point in the history of the case, one which I think bears largely upon the result, viz.,

that the mother states that within a few days of the birth of the child, the nurse who was in attendance on her called her attention to the fact that there was no "soft spot" in the baby's skull.

The child was dull and apathetic. She was easily roused by loud sounds, and would turn her head in the direction from which she imagined them to come. She was not attracted by objects moved before her in order to catch her sight, unless these were of a bright or luminous character, such as a flaming match. In the same way she was unaware of the presence of anyone approaching her cot quietly, but if any noise were made she instantly turned her head in the direction of the visitor. She apparently could distinguish her mother by her voice, but not by her appearance, from the nurse. She was unable to feed herself, and altogether was in a condition that has been aptly compared to that of a jelly-fish. Mr. Work Dodd kindly examined the eyes on several occasions. He could find nothing abnormal in the fundi, or in the media, and there was no paralysis. The loss of sight seemed to be due to no defect in the visual apparatus, but to a weakness of the power of perception, analogous to the weakness elsewhere in the body.

The child was kept under observation for a week. During the time she appeared to grow more feeble, and on several occasions I was unable to attract her attention even by a bright light. This condition, however, seemed to vary, and at other times she would appear to be attracted by persons passing between her and the windows. There was no actual paralysis of the limbs, no apparent loss of sensation, and the knee-jerks were slightly exaggerated.

Under these circumstances I asked my colleague, Mr. Edward Cotterell, to see her with me, and as the child appeared to be steadily losing ground, and the symptoms and appearance seemed to point to a possibility of increased intra-cranial pressure, he advised operation with a view to its relief. Accordingly, on August 9th, Mr. Cotterell trephined the right parietal bone, rather above its centre, and with cutting forceps removed a channel of bone about $1\frac{1}{2}$ inches long, and $\frac{1}{2}$ inch broad in a forward direction. There was a rise of temperature on the following day, but this dropped to normal on the 11th. The child remained in about the same condition.

On August 23rd Mr. Cotterell reopened the wound, and removed a similar strip of bone about $2\frac{1}{2}$ inches in length in a backward direction, starting from the trephine hole. There was no rise of temperature after this operation, but in a few days the child certainly began to take notice of persons moving about the ward, and to watch what was going on. She also seemed to be gaining power in the muscles of the back. Mr. Cotterell thought that further operation would be beneficial, and accordingly on September 4th and 13th he repeated the above operations on the left side. Neither of these operations were followed by any severe consequences, but on September 19th the patient had a sharp attack of jaundice with some rise of temperature. She recovered from this, and soon began to manifest symptoms of great general improvement. She appeared to notice all going on around, any slight noiseless movement being sufficient to attract her attention. She soon sat up and played with her toys, and began to evince a desire to stand, holding on by the sides of her cot. She remained in hospital until the middle of October, 1893, when she went back to her own home. I have seen her since from time to time. Her progress has been that of an ordinary child, and has been uninterrupted. She has had no return of fits. She seems quite intelligent; the sulci can still be felt on either side of the median line of the skull.

The remarkable improvement after operation in this case is, I think, worthy of note. With regard to the condition, microcephalus, there are two views as to its etiology. One of these, described by Virchow, regarded the condition as one of too early synostosis of the cranial bones. A later theory, supported by the majority of the authorities on the subject of idiocy, ascribes the primary defect to a want of development of the brain itself, the smallness of the bony covering being secondary. I think without doubt that the majority of cases are of this class, and that little intellectual improvement can be expected from operation. But I am convinced that there is a certain small proportion of these cases in which the bones are primarily at fault, and I think that the case under question, viewed from the point of view of its history, the non-existence of the fontanelle at birth, the good health of the child during its first year, the grave symptoms coming on at the time when the special centres were beginning to be called into

activity—and of its improvement after operation, is to be regarded as one of this class. It may be impossible to distinguish clinically between these two types, but the operation, although it appears to be a severe one, is not so in reality. In eight cases, which have been kindly operated on for me by Mr. Clutton, and Mr. Cotterell, I have only seen serious effects from the operation in one, and that was a continued hyperpyrexia, such as has also been noticed by Mr. Victor Horsley in these operations, and which he attributes to the derangement of some thermo-taxic centre in the cortex.* I think one is fully justified in advising operation in all these cases, improvement, of greater or less degree, being almost constant, and danger from the operation not being excessive. In the cases in which there is no mental improvement, there is certainly relief from what appears to be the pain of severe headache, the patients, who were previously restless and continually screaming, becoming quiet, tractable, and apparently comfortable.

REMARKS BY MR. EDWARD COTTERELL.

I am entirely in accord with Dr. Wallis Ord respecting the etiology of this class of cases. All the symptoms point to a very gradual compression of the brain and to cortical irritation.

In these cases the bones of the skull are found much thinner than normal, and there is often little or no diploe to be seen, whilst the compact tissue is so compressed that it gives an increased hardness to the bone, so that a large amount of force has to be exerted in order to cut through it with the forceps.

When the strip of bone is removed the dura mater will be usually found to bulge up into the groove, showing that there is increased intra-cranial pressure.

In performing linear craniectomy there are two things we have specially to avoid, namely, shock and hyperpyrexia.

The shock may be caused by a too prolonged and severe operation, combined with hæmorrhage. Children stand hæmorrhage very badly, and everyone who has had any experience in operations, where the scalp is involved, knows that the arteries of this region are not the easiest to secure, and that the length

* In this case the child recovered after the use of the graduated bath four or five times daily for a fortnight.

of time the child is on the operating table is often prolonged from this cause. By performing linear craniectomy in sections, that is, by dividing it up into two or three operations each side, severe shock from the operation itself is avoided, and in my experience hyperpyrexia does not occur. My method of performing this operation is briefly as follows:—

The child being anæsthetised, a piece of india-rubber tubing is wound round the head below the occiput behind, and in front reaching down the glabella. The ends of this improvised Esmarch tourniquet are secured with a pair of pressure forceps. The scalp is rapidly reflected, and if the band has been properly applied *there will be no hæmorrhage*. The trephine is applied in a suitable position without first removing the periosteum, and the opening elongated with bone forceps. The amount of bone removed at each sitting must be regulated according to the condition of the child, but it is much better to remove too little, than too much, at a time. When the amount of bone adjudged necessary has been removed the scalp is sutured together, leaving each end slightly open to provide for drainage. The dressings are then applied, and pressure being well kept up, the india-rubber band is loosened, and a capeline bandage quickly and firmly applied.

In all the cases I have treated in this way there has been no necessity to dress the wound until the eighth day, when the stitches can be removed, and the incision will be found to be healed.

The improvement both mentally and bodily in the case related by us has been very marked, but not more than may be expected in other cases of a like nature. Moreover, it is now nearly 18 months since the date of the last operation, and we have every reason to hope that this improvement will be maintained.

Dr. SHUTTLEWORTH said he had had under his observation three cases of microcephalus, in idiots, in which only the slightest benefit had followed the operation. He agreed, however, that the operation could no longer be ranked among those described by Jacobi at Rome as “the rash feats of indiscriminate surgery,” for in some of the cases, at any rate, there was evidently something more than ordinary congenital microcephalus to be dealt with. He pointed out that the term “microcephalus” was usually restricted to heads of which the circumference did not exceed 18 inches. In the authors’ case, however, though the circumference was upwards of 19 inches, the absence of all yielding about the fontanelles pointed to premature ossification, and that was the point upon

which the advisability or otherwise of the operation must depend. He admitted that the cases he had referred to were all well marked examples of ordinary congenital microcephalus, in which no one would have expected any benefit to follow the operation. In these cases there was evidently an arrest of development of the brain itself at the fifth or sixth month of intra-uterine life, and the skull was *consequently* small. These ought not, therefore, to be described as examples of premature synostosis. He referred to a typical case, for many years under his care, of an adult who died, aged 29, in which Professor Cunningham had remarked that the bony sutures were even then not yet firmly synostosed.

Mr. ARBUTHNOT LANE asked whether the description of microcephalus could correctly be applied to the authors' case.

Dr. ORD, in reply, said that his colleagues had agreed that the case was really one of microcephalus. There was no evidence of tumour or tubercular disease within the cavity of the skull, and the child did not experience the pain which one would have anticipated had there been any tumour or meningeal trouble. It was operated upon on the assumption of its being an instance of premature synostosis, and the result of the operation appeared to bear out this view. He admitted that it was not an extreme case, such as those referred to by Dr. Shuttleworth, in fact there was not any primary atrophy of the brain, the primary mischief being in the bones of the skull.

March 11th, 1895.

A CASE OF HYSTERICAL DEAFNESS, WITH SOME REMARKS ON THE DIAGNOSIS AND TREATMENT OF THIS AFFECTION.

By HECTOR W. G. MACKENZIE, M.D., F.R.C.P.

HYSTERICAL deafness is a condition as to the real existence of which considerable scepticism exists in some quarters. Very little is said on the subject, either in text-books treating of hysteria, or in treatises on diseases of the ear. Very few cases have actually been recorded. Some think it highly improbable that it ever occurs, and suggest that in the supposed cases the patient has been malingering.

Now there is no form of disease in which experience is more useful in assisting us to arrive at a correct diagnosis than in the case of hysterical affections.

It is needless to add that there is no form of disease in which it is more important that a correct diagnosis should be arrived at.

Hysteria always implies curability. I cannot recall any hysterical affection which did not terminate in recovery, when recognised and appropriately treated. At the same time, in a large proportion, recovery would not have ensued, unless the proper treatment for the particular condition had been adopted. I consider it is highly important, therefore, to demonstrate by a case, which seems to me perfectly conclusive, that hysterical deafness does exist, and to draw attention to the means by which in this case a cure was brought about.

I do not for a moment mean to suggest that hysterical deafness is at all a common condition, but I do think that it is quite possible that its existence is a little more frequent than is generally believed, and that when it does occur, its nature is often not recognised.

No one can expect to recognise, far less to cure, a malady which he is firmly persuaded is non-existent. The knowledge that a malady exists is an important step towards its recognition.

As so little is said about hysterical deafness in the text-books in ordinary use, it may be of service to enter a little more in detail as to the views generally held on this subject.

Gowers,* in his account of hysteria, says hearing is involved in the hemianæsthesia, but scarcely ever alone. Ross† and Bristowe‡ also allude to its occasional occurrence under the same circumstances.

Jolly§ (in 'Ziemssen's Cyclopædia') states that hysterical deafness is occasionally observed in severe cases of hysteria, and that, too, in one ear as well as in both, and in the absence of any demonstrable disease. It also generally continues after severe attacks, and combines with other anæsthesiæ. Like hysterical blindness, it may suddenly disappear.

Briquet,|| in his 'Treatise on Hysteria,' speaks of hysterical deafness as a malady of which he has had personal experience. He says there are very few cases in which it is absolute. The patients hear very badly when the voice is a little raised. They do not distinguish the ticking of a watch placed very near the

* 'Diseases of the Nervous System,' 2nd edit., 1893, vol. ii, p. 994.

† 'Diseases of the Nervous System.'

‡ 'The Theory and Practice of Medicine.'

§ 'Ziemssen's Cyclopædia,' vol. xiv, p. 570.

|| 'De l'Hystérie,' 1859, pp. 296, 297.

ear. The deafness is accompanied with anæsthesia. It is very apt to remain when not treated, and yet may sometimes disappear when the other symptoms do.

Axenfeld and Huchard* refer to the existence of hysterical deafness in conjunction with anæsthesia of the skin of the external ear and meatus. They say it is always unilateral, and accompanied by hissing in the ear. They allude to the possibility of transference.

Such are the views of authorities on nervous diseases who speak of this form of deafness. It would be easy to mention others who do not refer to it. As one whose opinion is of great weight, Dr. Hughlings Jackson may be mentioned as a disbeliever in the existence of hysterical deafness. In a letter to me he expresses his doubt as to its reality, and recommends great caution in accepting the diagnosis.

A considerable number of aural authorities mention it as a rare affection, some ignore it, while others refer to it in terms which suggest, as I have already remarked, that they consider it to be altogether a feigned disease.

Ladreit de Lacharrière† says it occurs sometimes with other hysterical symptoms, sometimes alone; that it is sudden in its appearance, and complete. In regard to this latter point he is very precise. He says the patients are never half deaf, they hear absolutely nothing.

Politzer‡ says: "Deafness of undoubtedly hysterical character is very seldom met with, according to the observations hitherto made, perhaps even more seldom than hysterical amblyopia. It is characterised by marked oscillations in the function of hearing, and the rapid change of the accompanying symptoms. There always exists simultaneously anæsthesia or hyperæsthesia of the other nerves of sense, as well as anæsthesia or paralysis of the affected side of the body, with hyperæsthesia of the opposite side. Würdemann," he adds, "observed partial anæsthesia of the external part of the ear and membrana tympani accompanying it. The whole of the phenomena may disappear periodically, or by the action of transference a rapid transfer of the auditory paralysis and all the other symptoms to the opposite side may take place."

* 'Traité de Névrose,' p. 992.

† 'Dict. Encycl. des Sc. Méd.,' ser. 3, vol. xiii, art. *Surdité*, 1884.

‡ 'Diseases of Ear,' edited by Dalby, 1894, p. 670.

Gruber's* remarks in his text-book are much to the same effect. "Functional auditory derangement," he says, "is sometimes observed in hysterical subjects. It usually occurs periodically upon certain external causes and in various ways; sometimes the impairment of hearing is manifested merely as regards speech, or again in connection with definite tones or noises. It is mostly unilateral, and there is usually associated hyperæusis of the other ear." He considers transference as of diagnostic service.

Hartmann,† again, refers to partial or total deafness as a symptom rarely observed in hysteria, occurring either independently or along with other hysterical symptoms. When deafness is not complete, he says, sound conduction through the bones is more impaired than that through the air. He also refers to the possibility of transference.

In English text-books the references to hysterical deafness are even more meagre.

Extremely interesting are Sir William Dalby's‡ observations on the effects of the emotions on the hearing. "Some persons," he says, "lose their hearing during periods of mental excitement and depression." He refers to sudden deafness as the result of emotion arising from the sudden loss of a relative, witnessing of a suicide, sight of a dead relative, news of a disaster. These observations are extremely valuable, as they are the outcome of personal experience. It would be very interesting to know what was the subsequent history of these cases, and what opinion is held as to their nature.

Macnaughton Jones and Stewart,§ in their text-book, also refer to sudden shock, from similar causes, as setting up complete and permanent deafness. Deafness arising in this way must surely be purely functional.

In the encyclopædic system of Burnett|| "Hysterical deafness," it is said, "is not a disease, only a symptom. It is unilateral, and affects either ear. The loss of hearing power is complete, and may last for a few hours or days, or remain more or less per-

* 'Text-book of Diseases of the Ear,' edited by Law and Jewell, 1890, pp. 545-6.

† 'Diseases of the Ear,' translated by Erskine, 1887, p. 229.

‡ 'Diseases and Injuries of the Ear,' 4th edit., 1893, pp. 231-2; and Quain's Dictionary, Art. 'Disorders of Hearing,' vol. i, p. 788.

§ 'The Practitioner's Handbook of Diseases of the Ear,' 5th edit., 1894, p. 57.

|| 'System of Diseases of the Ear, Nose, and Throat,' vol. i, 1893, pp. 526-7.

manent. The ability of the patient to hold the function in abeyance is evidenced by the results of treatment with such means as must certainly act upon the imagination or will."

In Field's* 'Manual,' this form of deafness is mentioned, but not discussed, and the loss of hearing after strong emotional disturbance is alluded to.

In the latest students' text-book, that published by Sheild† this year, the question of the reality of this malady is once more raised. Sheild's views on the subject illustrate what I was saying as to the scepticism with which the question of hysterical deafness is regarded in some quarters. "The practitioner," he says, "must be on his guard in the matter of hysterical deafness. In these cases the true explanation of the symptoms is found in the general condition of the patient, the age and sex, and other manifestations of the neurotic tendency. No certain symptoms of aural disease can be demonstrated, and the patient seldom, if ever, answers rationally to the tuning-fork tests; she will declare that when one ear is closed, the fork on the vertex is heard better in the open ear, or that the fork is heard on the vertex, not on the mastoid. The deafness often shifts from one ear to the other. Such contradictory statements are diagnostic of prevarication, and the case then resolves itself into the treatment of a functional malady. Here, constitutional and moral treatment are of more importance than local."

There is a pretty general agreement in the account given by Politzer, Gruber, Hartmann, Briquet, Lacharrière, and Burnett, to the effect that hysterical deafness does exist, but that it is decidedly uncommon; that it is usually unilateral, and accompanied by hemianæsthesia; that it is transferable, and that it is of variable intensity.

Hartmann is the only one of the writers quoted who refers to the question of bone conduction of sound in hysterical deafness, a point of great importance. *A priori* one would expect that sound conduction through the bones would be about equally impaired with that through the air, in a malady where it is not the organ of hearing itself which is at fault, but the impression receiving and interpreting function of the brain. Hartmann observed greater impairment of bone conduction than of aerial; but in my own case both were equally affected.

* 'Manual of Diseases of the Ear,' 5th edit., 1894, p. 295.

† 'Diseases of the Ear,' 1895, p. 224.

Walton* in a paper on Deafness in Hysterical Hemianæsthesia, founded on the examination of some 14 cases at the Salpêtrière, concludes that "when the loss of hearing is incomplete, the deafness for sounds conveyed by the bone exceeds that for sounds conveyed by the air." This supports Hartmann's statement. On the other hand, in a case published by Ouspensky,† of Moscow, the bone conduction was apparently not impaired at all.

Most of the authorities, it will be observed, assert that the deafness is unilateral. Jolly is almost alone in allowing that it may be double. Both ears were affected in my patient. Some say it is complete, others that it is partial; it probably occurs in both forms. In my patient it was complete in one ear, nearly complete in the other.

The points which I consider are of importance in making the diagnosis of hysterical deafness are these:—

1. The association of deafness with undoubted symptoms of hysteria, whether paralysis, anæsthesia, spasms, convulsions, aphonia, globus, or the like.

2. The sudden development of the deafness after some emotional disturbance or shock, after trauma, or in the course of hysterical illness. The mental effect produced by Politzerisation and the rupture of the membrane was apparently the cause in my patient.

3. The absence of any sufficient cause for the deafness in the auditory apparatus itself, as shown by the ordinary methods of examination.

4. The equal impairment of bone conduction of sound. In the face of Ouspensky's case, I cannot lay so much stress on this point as I might otherwise do.

5. The co-existence of anæsthesia of the pinna and external meatus is very important, if found.

I shall now give a brief account of the main features of my patient's case and of the treatment which proved successful.

H. G., a girl, aged 16, was admitted to St. Thomas's Hospital in March, 1893. She was then suffering from loss of power nearly complete in the arms and muscles of the neck and back, and quite complete in the legs, together with deafness in both ears and aphonia.

A very full history of her illness has been given to me by the girl's mother, which I shall give nearly in her own words:—

* 'Brain,' vol. v, pp. 458-472.

† 'Annales des mal. de l'oreille et larynx,' déc. 1881.

"She was taken ill at a boarding school in November, 1891, with sore throat, there being at that time an outbreak of diphtheria in the school. I was at first told she had a diphtheritic sore throat, but later on, when she did not recover as quickly as the doctor anticipated, I was told it was diphtheria, but with an absence of some of the usual symptoms. She came home at Christmas convalescent and was seen by the local doctor, who said she seemed quite as well as could be expected. At the end of January, 1892, she had a mild attack of influenza. The doctor was called in but did not think it necessary to see her after the third day. I called him in again a day or so later because the girl was complaining of ear-ache, to which she had been at times subject. Her hearing up to this time had been perfect. For this ear-ache the doctor blew up the left nostril with a Politzer. The girl screamed, and from that moment was extremely deaf. The doctor said he had perforated the ear and that the result was not what he anticipated. For some days the ear discharged copiously a green fluid.

"On February 7th I took her up to town from Wales to see an eminent aural surgeon. The latter, after examining her, looked very grave and said that it was doubtful how much was due to paralysis, and that he could see where the perforation of the left ear had been but it was then healed. She was ordered to have galvanism applied locally and strychnine to take internally.

"On February 19th I took her to see my London doctor and asked him to examine her back, as I thought one of the ribs under the left breast seemed sunk. The doctor said the child was full of paralysis and he was surprised the back had not been noticed before. He then gave me a prescription to supersede that of the aural surgeon, but she had not taken any when the paralysis commenced. That evening I took her to Olympia to cheer her, the deafness being so trying, and whilst there the numbness came on in the right foot. I got her home to my sister's house, and it being too far to send for my own doctor at that time in the evening I called in a doctor near. The next morning the former saw her and said the left arm would become numb next, and it did, then the left foot, and then the right arm. Three days later I noticed a catch in her breath and sent for both doctors. The doctor near, who arrived first, said he thought she was dying. By the time the other arrived she was nearly suffocated and he saved her by treating her

like a drowning person. He said it was paralysis of the glottis. By this time she was without feeling everywhere except the throat and head, and could swallow only tiny sips with difficulty and speak only in a whisper. To attract her attention one had to touch the head or neck. She was like a living corpse, except that she could speak in a low voice and see.

"The next day she was removed to be near my doctor and was placed in charge of a trained nurse, who tells me for some weeks she only breathed through one lung.

"She continued there from February to August under this doctor's treatment, gradually recovering sensation and power until she could use her hands perfectly, and sew, write, &c. She had massage at first every day, then every other day.

"In August the doctor advised me to take her to Droitwich as she was making no further progress. She remained there five weeks, having brine baths, massage, and electricity. She could not raise herself or use the legs, but she could slowly and with great effort raise them up. She went out twice daily in a spinal chair.

"She then was taken to Weston-super-Mare for a month, continuing the electricity and almost living in the open air. Her general health was perfect and she was always extremely bright, cheerful, and intelligent. At the end of October she was taken home to Wales. She continued well in health the whole winter, going out once and twice daily in a reclining chair, but recovering no more power. In March, by my London doctor's advice, I took her to St. Thomas's Hospital."

I shall now leave the mother's account and state what the condition was on her reception into the hospital.

She was poorly nourished. Her feet and legs were cold and bluish. She was quite unable to sit up without support. The head fell forward unless supported. The feet were over extended so that they made nearly a straight line with the legs.

The muscles of the calves were wasted and flabby. There was complete loss of voluntary movement in both legs. The knee jerks were brisk and the plantar reflexes were normal.

The arms were not completely paralysed, although there was great impairment of muscular power and considerable wasting of muscle.

There was no affection of sensation and there was no loss of

control over the emunctories. There was complete aphonia. With the exception of the deafness there was no sign of affection of any of the cranial nerves.

With the right ear the patient could hear nothing, but with the left she was able to hear a little. When spoken to very clearly and slowly she could hear with the left ear by the aid of an ear trumpet, and she could just hear the ticking of a watch held close to the meatus.

Nothing abnormal could be detected on examination of the ears with the speculum. When the tuning fork was sounded and placed on the vertex she could not hear it in the right ear and only faintly in the left.

On April 20th she was isolated in one of the small wards and Weir-Mitchell treatment supplemented with daily shower baths, and the application of the induced current was employed for ten weeks. She gained in weight during that time 22 lbs. and her voice improved so that she could phonate distinctly at times. Very little improvement, if any, took place in the other symptoms. She was brought back to the ordinary hospital ward about the beginning of July.

Up to this time she had been under the care of my colleague, Dr. Turney, who now asked me to take charge of her as he was unable any longer to do so. To Dr. Turney I must express my obligations for much assistance in the management of this difficult case.

When I saw the patient for the first time in July, 1893, except that she was now fairly stout, having what her mother called a bloated look, I could find little to alter in the original description of her condition. She had no more power. Her legs and feet were still cold and blue. Her deafness was no less marked. She objected very much to the use of the ear trumpet. When this was applied to her left ear and I spoke very slowly and distinctly I could make her hear a little.

I got her out of bed and with the aid of about six assistants I had her placed in the erect position. She required not only to be held up but her knees, hips, and back had to be supported. I never saw such absolute limpness and inertness. The loss of hearing made her case a peculiarly difficult one to treat, for what the physician says to a patient with hysterical disease has ordinarily much effect in helping on the cure. As the patient had some

power in her arms, I thought I could work on them with most success, and in order that I might be able to put her through such exercises as I wished, I ordered for her a gymnasium suit. When this was obtained I got her by degrees to walk on the hands, her body and legs being supported at first. Gradually she was able to bear more weight on the arms. I made her practise dumb-bell exercises, increasing these gradually.

I also with the help of assistants put her through the steps of walking, a process to which for some time she could give no voluntary assistance. She took great interest in these efforts, and improvement set in slowly but surely. By the end of August her legs had improved so much that she was now able slowly to bring them out of bed, and to hold them extended for a short time. The left side had recovered power to a greater extent than the right. When placed and supported in the erect position she was now able to shuffle her feet forward, whereas previously they simply were dragged along the floor.

In another fortnight she was able to move herself along by means of a framework on wheels, shaped like a pulpit, which gave partial support to the body while admitting of the movement of the legs. By the beginning of October she was able to get about with very little support, and was up and dressed most of the day. Her progress was unfortunately interrupted by an attack of scarlet fever which set in on October 16th. The attack was mild and uncomplicated. When the patient was able to be out of bed again it was found that she had not really lost ground, and the paralysis gave no further trouble. The deafness was, however, as great as ever.

Before the patient had come under my care, Dr. Turney had entertained the idea of the deafness being functional and had tried the effect of blistering behind the ears, but with no benefit. I had hoped that, with the amelioration of her general condition and the cure of her paralysis, the deafness would disappear. I was much disappointed to find this serious symptom remaining, which, unless cured, would cast a shade over the whole of the patient's life.

Although everything, I thought, pointed to the deafness being hysterical, I was beginning to lose hope, and to think that after all I might be mistaken. The all-important problem, therefore, now remaining was how to restore the hearing. Everything

recommended in the text-books had been tried. Briquet speaks of the complete success following faradisation. He says he does not know a single case where it had been necessary to have more than two sittings of a few minutes each to effect a complete cure. In Ouspensky's case, after various specialists had been consulted in vain, faradism locally almost immediately brought back the hearing. But both galvanism and faradism had been tried here in vain. Politzer's recommendation to try to affect the neurosis by local treatment did not seem suitable here, where local treatment had been the original cause of the malady. The general symptoms had, of course, been treated as others recommended. What more could one try? At this stage I happened to remember a short article on "*Surdité chez les hystériques*," which had been sent me by my friend, Dr. Maximin Gilles,* of Marseilles, and in this I found a hint which happened to prove a complete success.

The mode of treatment suggested was simply to try to re-educate the sense of hearing much in the same way as we had re-educated her in walking. In Dr. Gilles' own case the treatment had not proved a great success, but this is not to be wondered at, seeing his patient was at the time he was treating her suffering from convulsive attacks, each attended with an aggravation of the deafness.

I explained to the nurse what to do, and to the intelligence with which she carried out the directions the success of the method was greatly due. The patient was to be made to listen to and try to count the ticking of a clock at increasing distances, to listen to and attempt to repeat words and sentences spoken first close to the ear and then at greater distances. The treatment was commenced on December 21st. At the first trial the patient could not count the ticks of the clock even when held close to her ear, but after about 10 minutes' careful listening she succeeded. At the next trial the clock was held at 2 inches distance from the ear. After she had been successful at this distance a greater distance was tried, and so on after each successful attempt. The voice was also used at varying distances to supplement the ticking of the clock. This was persevered in for three days for from 15 to 30 minutes a day with most marked success. At first simple words were used which were repeated clearly and distinctly until the patient heard them. The ears were practised alternately. She could

* '*Marseille Médical*,' 1889, xxvi, 16-24.

not hear the voice at first, even at a short distance, until the word had been repeated six or seven times. When she could hear words then short sentences were tried, which she was made to repeat. After 10 days' practising in this way she had so far improved as to be able to carry on an ordinary conversation. A week or two later her hearing was as acute as that of any healthy person.

It should be added that the recovery of the hearing was accompanied by a great improvement in her mental condition. Up to this period she had been always rather dull and depressed, even after the recovery of her muscular power. With the restoration of hearing her spirits immensely improved, and she became as bright and lively as she had previously been the reverse. Since this time, now 14 months ago, she has enjoyed excellent health, and has had not the least symptom of her former malady.

Her mother writes me: "She is very happy again, energetic, always busy, and looking quite healthy. Her hearing seems very good. Some friends fancy a little deafness, but I have never noticed any."

Such are the facts of my case. I may summarise them as follows:—

1. An attack of sore throat, which may or may not have been diphtheria, but certainly presented none of the usual sequelæ of that disease.
2. Two months later an attack of influenza, followed by ear-ache.
3. Sudden onset of deafness during forcible politzerisation for the relief of the ear-ache, which resulted in rupture of the membrane of the left ear.
4. Three weeks later the rapid development of nearly general anæsthesia and paralysis.
5. The long continuance of the paralysis in spite of the prolonged employment of isolation, massage, electricity, and extra feeding.
6. The cure of the paralysis, after 18 months, by re-education and forced exercise of the muscles.
7. The persistence of the deafness after the cure of all the other symptoms, in spite of a variety of remedies.
8. The ultimate rapid cure of the deafness after 22 months by the method of re-education I have described.

I can hardly hope that I have stated the facts as clearly and forcibly as to convince all my hearers equally with myself and those who had an opportunity of watching the case, of the reality of hysterical deafness. I shall be more than satisfied if its publication leads to the recognition of even one other similar case. It is possible that the mode of treatment which here proved so successful may again be attended with as gratifying a result.

The VICE-PRESIDENT, in the Chair (Mr. CLUTTON), said he had never seen quite such a case, though he had met with instances of functional deafness in association with hemianæsthesia. The education of the function of hearing, in view of the results obtained, was certainly an experience of great interest.

Dr. WILLIAM HILL said they could only accept the diagnosis of *purely* hysterical deafness with some difficulty. He had been looking for years for a case of pure functional deafness, but he was fain to say that he had not come across one. He pointed out that in the author's case there was at any rate a strong suspicion of diphtheritic infection. As the author had not seen the patient at a time when the typical diphtheritic paralysis would be present, he could not be expected to give a definite opinion on the point, especially as the symptoms were masked by functional paralysis. In this case too there was a history of traumatism, sufficient probably to cause concussion of the labyrinth with temporary anæsthesia of the auditory nerve. The neurotic element was grafted upon this, so that the case might be described as a mixture of diphtheritic and traumatic paralysis of the auditory nerve in conjunction with the neurotic element. It had been suggested that the result of treatment bore out the neurotic view, but he might point out that the same treatment was often attended with great benefit in deaf mutes with undoubted structural lesions, in whom in consequence of some congenital defect the nerve had never been exercised in any way. He himself thought that the case was probably one of peripheral lesion of the auditory end organs, complicated with hysteria, when it first came under observation, whilst latterly the deafness was functional.

Dr. TURNER said he had had an opportunity of seeing this patient during the first part of the time she was in hospital. It was after he had failed in affording relief after fairly energetic treatment that the author had taken charge of the case. He did not think that anyone who saw the case or who studied the notes of the case could feel much doubt in disposing of the suggestion of its being diphtheritic. The reflexes were normal. Apart from the vague account of the patient having had diphtheria, there was nothing to suggest such a thing. It was evidently a severe and extreme case of functional paralysis. Throughout there had been no sign of disease of the tympanum. The affection of hearing was not of a character that suggested organic disease. The condition of the patient suggested hysterical affection quite apart from the general paralysis. The rapidity with which improvement set in under treatment was simply astonishing. In the absence of any sign of peripheral nerve disease such a far-fetched idea as that of concussion of the labyrinth was quite out of the question. In some cases of hysteria the ordinary combination of moral and physical treatment was sufficient by itself, and the laborious system of re-education adopted by the author was unnecessary,

but there were others in which everything short of this would fail. The general health might be improved but the special functions remained in abeyance.

Dr. SYMES THOMPSON observed that the author had spoken of the success of the treatment as evidence of its being of a functional kind. Although he fully admitted the value of the treatment in such cases, he thought it must be allowed that in cases of organic disease of the ear very marked benefit had often followed systematic education of the special sense. He thought, indeed, that this plan had not, so far, received the attention it deserved in England, but with such brilliant results as had been recorded in cases previously regarded as hopeless he urged that it was entitled to recognition.

Dr. MACKENZIE, in reply, pointed out that the history of the case made it extremely improbable that the patient was really suffering from diphtheritic paralysis. He had had a good deal of experience of such cases, and he had never met with any at all resembling the case under discussion. Then with regard to the trauma, it was well known that trauma was one of the commonest causes of hysterical affections, and trauma of the ear was one of the most likely causes of hysterical deafness. Of course he was not in a position to affirm that it was not concussion of the labyrinth, but it was difficult to admit that concussion of the labyrinth could last for two years, and then rapidly disappear under such a treatment as he had described. The remarks that had fallen from Dr. Thompson supported the view that cases of hysterical deafness were more common than was supposed. Possibly a certain proportion of the cases in which such excellent results had been obtained belonged to this category.

REMARKS ON A SERIES OF THIRTY CASES OF MOVABLE KIDNEY TREATED BY OPERATION, WITH THEIR RESULTS.

By W. BRUCE CLARKE, M.B., F.R.C.S.

THE completion of a series of 30 cases of nephrorrhaphy seems to me to be worthy of record. The value of the operation has sometimes been called in question. I am anxious, therefore, to record with their after-history, so far as I have been able to learn it, the ultimate results of these 30 operations.

Very nearly two years ago, in a paper which I had the honour of reading before the Fellows of the Royal Medical and Chirurgical Society, I drew attention to a class of cases of movable kidney which had hitherto attracted but scanty notice in this country, and in which very severe pain was one of the prominent features. From the pain and other acute symptoms which determine these attacks, it seemed all but certain that a sudden displacement of the kidney from its natural bed must be their determining cause,

and that the term "acute renal dislocation" would best describe what took place, and what indeed was essential to the production of the symptoms in question.

Such cases form only one variety of floating kidney, though a further and more extended experience of what may be described as the more common variety of this condition has forced on me the conclusion that it is rare to come across any case of the kind in which pain has been completely absent throughout: and of the reality of these attacks of pain, when once they are witnessed, there can be no possible doubt. The question to be determined is what is the probability of a successful result if an operation be performed. The immediate result in all my cases was a successful one, and, so far as I have been able to learn, every one of my patients is alive at the present moment.

In by far the great majority of these cases pain has been the prominent feature, and the severity of the pain has led to the demand for its relief. The special character of the pain was described at some length in my previous paper before alluded to. Suffice it here to say that the pain usually begins without any warning, sometimes in consequence of a strain or some severe exertion occasionally after injury. It is often attended by vomiting, and later on usually gives rise to local abdominal tenderness. The duration varies from a few hours to a day or two, and in some instances it may be cut short by manipulating the affected kidney, in other words, by reducing the dislocation. The condition of the urine during and shortly after the attacks varies greatly. It may be scanty and blood-stained, or almost porter-coloured, like that which is passed in acute Bright's disease, whilst in the less severe cases it is more commonly quite unaltered.

In some of the cases here related the pain was far less acute. It was described by the patients themselves as consisting of a dull ache, which rarely left them free from a sensation of uneasiness in the loin, and was usually aggravated by hard work or exercise of any kind. This class of case in women is almost invariably attended by more severe pain at the monthly periods, but I have never come across any instance in which the urine was blood-stained or much altered in condition in cases of moderate severity. In many of my cases, during the interval between the attacks, the kidney, even when the patient complained of no pain, was unduly tender to palpation.

Several of the cases referred to in the table on p. 284 present points of special interest; I will, therefore, refer to certain of them *seriatim*, and afterwards state briefly the conclusions which seem to be deducible from them.

Cases 1 and 2 both occurred at the West London Hospital, where they came under my care in 1888. They are remarkable as being the only two instances I have come across in which the kidney was surrounded by a well-marked mesonephron, and in which, therefore, it was found necessary to open the peritoneum in order to fix them firmly in position. The kidney in both these cases could be felt to be distinctly movable, and slipped readily out of its proper position. In both the sutures were passed through the peritoneal coats only, and the patients made rapid recoveries.

Case 1 complained of but little trouble afterwards, and when seen by me some 15 months later stated she was in excellent health, and had not had any pain in the loins.

In Case 2 the pain ceased for a few weeks, and then returned with even greater severity than before, so much so that she begged for something more to be done to relieve her. A second operation was performed six months after the first, and the kidney was found to be fairly well fixed in position. It was cut into and punctured with a needle, but no adequate cause for the pain could be discovered. As the patient's sufferings had been so very severe in the interval between the two operations, I decided to remove the offending organ. When the operation was completed the kidney was cut across and a small calculus covered with minute spicules was discovered in its interior. The patient made a speedy recovery and was cured of her trouble.*

Case 3 has already been published.†

The next case which offers any special points for consideration is Case 6, a woman who was placed under my care in 1891 by Dr. Gray, of Oxford, with the following history:—Her left kidney had been movable for three years and a half, and had given rise to

* The earlier history of Cases 1 and 2 was referred to in a paper read by me before the West London Medico-Chirurgical Society in 1890, entitled "Nine Years of My Surgical Experience at the West London Hospital"; and also in a paper on "Renal Surgery" at the Leeds Meeting of the British Medical Association. See 'British Medical Journal,' Nov. 16th, 1889.

† 'Med.-Chir. Trans.,' vol. lxxvi, p. 263.

a considerable amount of pain, quite incapacitating her from taking active exercise, and during the last three months she had experienced some pain on the left side. She was very thin, and the right kidney could be felt at times to be larger than natural. It was decided to operate on the right kidney first, and leave the question of the left for future consideration should her pains still persist. The kidney was fixed to the lumbar fascia by two large silk sutures, after it had been thoroughly explored for the purpose of ascertaining whether it contained a stone. She made an excellent recovery, and felt she had derived so much benefit from the operation that the pain on the left side seemed hardly to trouble her. Under these circumstances I did not propose to operate on the other side, and gave a favourable prognosis. Some few months later I heard she was much improved in health, and, with the exception of a very slight dragging pain in the loins, had no trouble from her kidney. The subsequent history of the case fully bore out the prognosis, and four years later she became a hospital nurse, capable of any amount of hard work.

Case 8, another female patient, is an excellent illustration of how liable a movable kidney is in its acuter forms to be mistaken for a case of renal calculus. In 1889 she was admitted into St. Bartholomew's Hospital in consequence of attacks of renal colic, which were supposed to be due to calculus, and she remained some time in hospital without passing any calculus. After she went out she had further attacks of pain and came under the care of Dr. Bousfield, in the Old Kent Road, who asked me to explore the kidney, and I did so in July, 1890, and found it somewhat movable, and sutured it in position. For a time she improved, but as a good deal of pain remained she came under my care for the second time about a year later, and the kidney was again explored. It was found to be firmly fixed to the side, but the ureter was loose and could be easily pulled up into the wound; in other words it appeared to be a good deal longer than necessary. The interior of the kidney was fully explored and a small bougie was passed down the ureter into the bladder, but no stone was discoverable anywhere. A drainage-tube was accordingly inserted and the wound closed. She made an excellent recovery, and since her last operation, though not entirely free from pain, has been able to follow her occupation without difficulty.

Cases 9, 21, 22, and 24 have many points in common. They all

either were passing or had at some time passed pieces of calculous material.

Case 24, which first came under my care at St. Bartholomew's Hospital in August, 1893, though by far the most severe of the four, is a typical example of the class, and I will therefore refer to it more in detail. The patient in question was aged 24, unmarried, and had had some pain in the lumbar region for several years, at times very acute. The acute attacks of pain were limited to the left side of the abdomen, and were usually accompanied by a certain amount of abdominal tenderness and distension. Just before she came under my care she had passed some phosphatic *débris*, and had had several slight attacks of hæmaturia. Her kidney on the left side was explored; it was found to be somewhat larger than natural, and flabby in texture. On incising it some urine and phosphatic gravel escaped, and its interior, including the pelvis, was considerably dilated, and contained a good deal of pus. It was easy to explore the interior thus dilated with the finger. There was no distinct calculus present, but the walls were here and there coated with phosphatic material. A small bougie was passed down the ureter into the bladder, and no obstruction of any kind was encountered. As there was still a fair amount of secreting substance left in the kidney walls, and the exact condition of the kidney on the opposite side was a matter of uncertainty, I decided to suture the left kidney firmly in position, with a hope of saving it permanently.

For the first few days the patient's condition gave rise to some anxiety, as she did not rally well from the shock, but she eventually made a good recovery, and though she passed some urine through the loin during the two subsequent months, she derived much benefit from the operation. After she left the hospital, as she was unable to rest, she relapsed into her previous weak condition, and soon suffered from severe pain on the right side, necessitating the fixation of this kidney, which was very movable, to the corresponding lumbar fascia, and three months later the removal of the left kidney, which was then reduced to a mere shell containing pus. At present she suffers from a certain amount of pain in her remaining kidney, but is better than she has been.

Of the remaining three cases in which calculous material was present nephrorrhaphy was performed in all three. Two of them

recovered completely, whilst the third (Case 9), which was under my care at the West London Hospital, had nephrorrhaphy performed in 1889, following by nephrectomy in 1890, and is now well and able to lead an active life.

It may possibly seem hardly fair to have included these cases under the head of movable kidney at all, since they ought rather to be described as instances of nephrolithotomy. I would draw attention, however, to the fact that the *débris* in their interior gave no evidence of the formation of any distinct calculus, but adhered to their walls over a larger or smaller area. There was no evidence that any distinct calculus had been passed by any of them, nor was the calculous material present in the early stages of their affections. It appeared only as a later symptom, and was, I believe, as much a secondary condition as the abscess in the interior of a kidney that had been movable for years, the history of which I am just about to relate.

Case 12 is the only one in which I have come across an acute abscess supervening upon a long-standing movable kidney. She was an old woman, aged 65, and was admitted to the West London Hospital in 1890 with an acutely painful swelling in the region of the left kidney, and a high temperature.

She gave a history of long-standing aching in that region, and stated she had been told she had something wrong with her kidney some years before. An incision was made in the left lumbar region, and the kidney found to be displaced forwards and somewhat downwards. It was distended with pus, which was let out, after which the organ was sutured to the lumbar fascia without much difficulty. A bougie was passed down the ureter and demonstrated that it was pervious. A rapid recovery ensued, and the patient left the hospital feeling perfectly well.

Cases 11 and 18, like Case 3, have already been described in my paper on "Acute Renal Dislocation," before alluded to. There are, in addition to these three, 18 other cases in which the mobility was uncomplicated by any other condition, and in which dilatation of the kidney pelvis either did not exist at all or had only just begun to appear at the time of operation.

It is difficult, if not impossible, to separate the acute cases which I have previously spoken of under the term "acute renal dislocation" from the more chronic form of movable kidney. One variety passes, as I have already stated, into the other by a series

of almost imperceptible gradations. Even the most chronic cases, when they are cross-questioned on the point, can usually call to mind some one or more occasions on which they have been seized with acute pain in the lumbar region. It may have been transitory, and it may have occurred some time preceding the enquiry in question, but it is rare not to get the information if it is sought for. I have, therefore, included all the uncomplicated cases of movable kidney in one series. Thus it appears that 21 of the 30 kidneys here referred to were uncomplicated by dilatation of the kidney pelvis to any marked extent. Of these 18 were cured, or at least so far benefited by the operation that they were enabled to lead an active life, and felt little or nothing of their old trouble. One of them (No. 30) has been operated on too recently to enable me to form any certain conclusion as to the ultimate result; so far, however, she is entirely free from pain.

In three of the cases, namely, Nos. 12, 28, and 29, there was improvement, but not complete freedom from pain or from danger of further destructive dilatation of the kidney pelvis. In Case 29 it is quite possible that further improvement may take place. Mr. Burnet, one of my former dressers, who sent this case to me, tells me that in the seven months since the man was operated on he has had six attacks of renal pain. In general appearance, however, he is decidedly better, and his friends describe the attacks as being less severe, and interfering less with his work than they used to.

In two of the patients above referred to (Cases 10 and 11) the affected kidney when explored was found to be so disorganised that it was removed at once (for Case 11 *see* "Acute Renal Dislocation"), and in two instances, Nos. 14 and 26, although an attempt was made to preserve the kidney, it was unsuccessful. The relief from pain was only temporary, and nephrectomy was performed a few months later. In the latter case Dr. Covey, under whose care the patient had recently been at Southampton, wrote to me some time after the first operation saying she was confined to her bed, and that her health was failing in consequence. Since the kidney was removed she has been quite free from pain.

Several points are suggested by a consideration of the above cases. First, the impossibility of distinguishing clinically between kidneys which are surrounded by a mesonephron, and those which

are movable behind the peritoneum. In my first two cases, as I have already stated, a mesonephron was present, but the character of the movements of the kidney gave no clue to its existence beforehand. In several of the subsequent cases the movements were so extensive that a mesonephron was expected to be present, but none existed.

It is often asserted that operations performed on movable kidneys do not yield the results which are expected from them. The results that will be obtained largely depend, I am convinced, on the condition of the kidney when the operation is performed. If the pelvis is dilated or the secreting substance largely destroyed, but little is to be gained by leaving the affected organ, if the other one is known to be healthy; and it is obvious that the more unhealthy the movable kidney proves to be, the more certain it is that the opposite organ is capable of taking on the work of both sides. If the ureter is lax and elongated the tendency to form kinks and temporary valves is considerable, and militates against the likelihood of a successful issue; as is well shown by the later history of Case 8. If such cases are to be operated on at all the sooner they come into the surgeon's hands the greater the chance of permanent relief of pain, and of preventing those degenerative changes which in all probability will eventually destroy the kidney, and tend to shorten the life of the patient to whom it belongs.

Table of Thirty Cases of Movable Kidney.

| No. | Name and age. | Prominent Symptoms. | Date of operation. | Result. |
|-----|-------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------|
| 1 | E. L., 39, female, married. | Dragging pain in loins | Nov., 1888 | Well 15 months later. |
| 2 | M. E., 18, female, unmarried. | Dragging pain in loins | Nov., 1888 | Pain returned; kidney removed, contained calculus. |
| 3 | J. E., 33, female, unmarried. | Severe pain right loin; 18 months' duration; at times nausea and vomiting. 'Med. Chir. Trans.,' vol. lxxvi, p. 262. | Dec., 1890 | Well 18 months later. |
| 4 | T. S., 27, female, unmarried. | Dragging pain; occasional attacks of severer pain with vomiting. | Nov., 1889 | No attacks of acute pain seven months later. |
| 5 | H. W., 24, female, unmarried. | Attacks of severe pain; two or three years; lately worse. | Jan., 1890 | Married shortly after; no pain in 1892. |

| No. | Name and age. | Prominent Symptoms. | Date of operation. | Result. |
|-----|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------|
| 6 | M. H., 27, female, unmarried. | Both kidneys movable; right three months; pain; left three and half years; operation on left. | Jan., 1891 | Well four years later. |
| 7 | W. S., 22, male. | Hæmaturia; attacks of pain; stone expected; none found. | April, 1890 | No pain after operation; soon lost sight of. |
| 8 | L. S., 23, female, unmarried. | Severe pain; explored twice ... | July, 1890, and Aug., 1891 | At present (1895) health good; occasional slight pain. |
| 9 | A. M., 27, female, married. | Severe pain; dilated kidney; contained phosphatic material. | July, 1889, and June, 1890 | Pain returned; nephrectomy a year later; well 1895. |
| 10 | J. N., 33, female. | Pains seven years; attacks last 12 hours; vomiting; kidney enlarged; nephrectomy. | Oct., 1890 | Well a year later. |
| 11 | J. P., 22, male. | Severe pain one year; kidney reduced to mere shell; nephrectomy. 'Med. Chir. Trans.,' vol. lxxiv, p. 255. | Nov., 1890 | Well four years later. |
| 12 | S. Q., 65, female, married. | Pain for years off and on; not severe; abscess. | Dec., 1890 | Well two months later. |
| 13 | C. R., 4, female, unmarried. | Slight pain three months; hæmaturia. | Feb., 1891 | Slightly improved. |
| 14 | L. G., 21, female, unmarried. | Two years' pain; vomiting; dilated kidney; nephrectomy. | April, 1891 | Married; well July, 1894. |
| 15 | L. S., 25, female, unmarried. | Pain several years | Aug., 1891 | Well at present, excepting occasional pain. |
| 16 | C. W., 40, female, married. | Pain from time to time | Jan., 1892 | Scarcely any pain a year later |
| 17 | R. B., 56, male. | A few weeks' history pain; kidney partly atrophied. | Aug., 1892 | Well three months later. |
| 18 | J. G., 39, female, married. | Severe pain. See 'Med. Chir. Trans.,' vol. lxxvi, p. 261. | July, 1892 | Well December, 1892. |
| 19 | H. T., 17, male. | Pain and hæmaturia... .. | July, 1892 | Well when leaving hospital; not seen since. |
| 20 | F. C., 31, male. | Four months' pain; vomiting ... | March, 1893 | Letter from Dr. Edwards, Bedford, 1894, to say he is well. |
| 21 | R. C., 31, female, unmarried. | Attacks of pain 12 or 13 years; hæmaturia; melancholia after operation. | May, 1893 | Improved. |
| 22 | F. H., 44, male. | Pain; nephrolithiasis; has passed a stone; none found at operation. | Aug., 1893 | Scarcely any pain six months later. |
| 23 | A. C., 24, female, unmarried. | Pain for two years off and on; hæmaturia: enlarged kidney felt before operation, which was not found a year previously. | July, 1893 | Well six months later. |

| No. | Name and age. | Prominent Symptoms. | Date of operation. | Result. |
|-----|----------------------------------|------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------|
| 24 | M. M., 24, female, unmarried. | Left kidney: duration 12 months; passed blood and pus. Right kidney, <i>see</i> Case 28. | Aug., 1893, and April, 1894 | Benefited for a time; left nephrectomy; no pain since. |
| 25 | A. M. N., 32, female, unmarried. | Six months' pain; dyspepsia ... | Jan., 1894 | Some discomfort for a while; three months later well. |
| 26 | E. P., 34, female, unmarried. | Pain four or five years; severe shoots down leg. | March, 1894, and Dec., 1894 | Benefited; pain returned; nephrectomy; well since. |
| 27 | S. B., 42, female, unmarried. | Eleven years since some pain; worse during pregnancies; large movable kidney tender to touch. | March, 1894 | Well October, 1894. |
| 28 | M. M., 25, female, unmarried. | Five months' pain; sometimes severe; right kidney; left, <i>see</i> Case 24. | Jan., 1894 | Benefited; some pain at present. |
| 29 | J. C., 23, male. | Duration six years; frequent attacks of pain lasting two or three days; vomiting; smoky urine. | July, 1894 | Improved. |
| 30 | A. K., 54, female, married. | Pain came on suddenly three years ago; frequent attacks since. | Jan., 1895 | Well at present time. |

The VICE-PRESIDENT, in the Chair (Mr. CLUTTON), pointed out that it was difficult, in the cases which were complicated with stone in the kidney, to distinguish those in which the stone was primary, and those in which it existed merely as a complication of the mobility of the kidney. He did not gather from the paper that there was any direct evidence of the presence of calculous material in the kidney.

Mr. LOCKWOOD said that in February he had seen a woman on whom two years since he fastened the kidney beneath the last rib, since which time she had been able to pursue her avocation as a dressmaker with comfort. When he first saw her she suffered intense pain, and he thought there must be stone in the kidney. He therefore cut down on the organ, but found a normal kidney, which was, however, unduly mobile behind the peritoneum. He found no sign of stone, so he contented himself with fastening it by means of three or four silk sutures, and the result had been complete relief. He suggested that a great many of these cases were probably better treated by means of some form of appliance, truss or pad, and in the author's cases doubtless other methods of treatment had been tried before operation had been decided upon. Personally he entertained no doubt that cases of movable kidney ought to be operated upon, but suitable cases were probably not very common.

Dr. HECTOR MACKENZIE said that in respect of these cases they looked to surgeons for guidance as to which were adapted for surgical measures. There seemed to be a general consensus of opinion that the general run of such cases were not benefited by operation.

Mr. LOCKWOOD observed that this was not the true sense of his remarks. What he intended to say was, that there were many cases of floating kidney which did not require operation.

Dr. MACKENZIE said that what physicians would really like to know was the class of case in which benefit might be expected to follow operation. If they could be told this, physicians would be very pleased to hand over their cases to the surgeons. Some time since he had been consulted by a lady who had been strongly advised by a Belgian surgeon to undergo operation, this gentlemen being of opinion that English medical men knew very little on the subject. He himself had not recommended operation, having come to the conclusion that the pain complained of was largely neurotic, as it was in many of these cases. He himself had never seen a case that had benefited by operation, and if one could draw the patient's thoughts from her kidney it would often be unnecessary to operate.

Mr. WALLIS agreed with the remark that some of the cases were not really *bonâ fide* cases of movable kidney at all, though most of them might fairly be described as such. He suggested that the severity of the symptoms complained of in many of these cases called for imperative treatment. He called attention to the fact that, in cases where there had been much pain in the kidney, fixation of the organ had had to be followed by removal. The important point was at what date ought the surgeon to interfere, for in many cases operation seemed to be unduly postponed. He doubted whether any appliance that could be worn with any measure of comfort would prove of service in maintaining the kidney in place. He would put the treatment on a par with the wearing of a truss for hernia as compared with the radical operation, and he thought the time was coming when people would prefer radical operations.

The VICE-PRESIDENT remarked on the use of silk ligatures by the author, and asked him if this was the substance usually employed by him, recalling the fact that he had seen cases with sinuses form, at the bottom of which were the remains of the silk ligatures. He himself used kangaroo tendon. He also asked the author what cases he considered called for operation. He himself had had a certain number of these cases, but he had only had recourse to operation when the abdominal belt failed to give relief. He felt sure from his own experience that as a general rule the belt might be relied upon to afford relief. When that failed the operation might be thought desirable. About 18 months ago he had treated a lady in this way, and she was now able to dance, though previously she had been a confirmed invalid. With the belt an air pad had been used which exercised direct pressure from before backwards. This had appeared to keep the kidney in position.

Mr. CLARKE, in reply, said that in respect of the general question as to what cases should be operated upon, it was very difficult to give a definite answer. He would not certainly operate upon every case he came across, though he was not sure that this was not what they would come to in a few years. When the patient complained of a great deal of pain and inconvenience he had cut down on the kidney and sutured it, and he supposed that the reason he had come across so many of these painful cases was that since he had called attention to them many cases had been sent to him for operation. He mentioned one case to show that pain alone was not a sufficient indication for operation. It was that of a young man who, after a severe injury, was sent to him for operation, but after examining him he had come to the conclusion that he probably had some blood round the kidney, so he advised rest for two or three months, and ultimately the kidney returned to its normal situation, and the pain disappeared without operation. In most of his cases he had

tried the belt before operating, except in cases in which the pain was very severe. Then there arose the question as to how the operation was performed. His plan was to cut down and remove the perinephric fat on the back surface, after which he passed a long curved needle with carefully sterilised silk ligatures through the lumbar fascia and through the kidney, not too deeply, but embracing a sufficient amount of kidney tissue, scraping the surface of the kidney before drawing the ligatures tight. He then closed the wound in the ordinary way. He invariably left in a drainage-tube in order to provide an escape for urine, &c., from the incision into the kidney substance, which he always made for purposes of exploration. He usually cut into the pelvis of the kidney where it joined the organ behind and passed his finger into it. Then he passed a probe down the ureter into the bladder, and if this proved to be clear he returned the kidney to its proper position, leaving in a drainage-tube for a few days. Some doubt had been expressed as to whether he was justified in including three or four cases as cases of movable kidney in which calculous matter was present. He had done so because the patients had had symptoms of movable kidney long before there was any symptom of stone; the stone, moreover, was phosphatic, which was a very likely sequel to movable kidney. He was of opinion that movable kidney played a much larger part in the production of kidney disease than was commonly imagined, and he had traced a number of cases of hydronephrosis, in many of which there had been signs of movable kidney before the kidney mischief had commenced. If one could prove this sequence to be common, it would go a long way in the direction of justifying operation in every case of movable kidney in order to prevent these subsequent changes. The large proportion of his cases in which the kidney pelvis was dilated might be explained by the fact that in most of them pain had been a prominent symptom, the pain having presumably been caused by occasional stoppage, probably in the ureter, with retention of the urine in the kidney for a certain time. What one wanted to know was what proportion of cases of movable kidney went on to hydronephrosis? He concluded by referring to the case of a woman who came to the hospital with two movable kidneys, in which he had advised against operation because pain was absent. She was under observation, and it would be interesting to observe if hydronephrosis developed later on.

March 25th, 1895.

ON A CASE OF TUBAL PREGNANCY AND ONE SIMULATING TUBAL PREGNANCY.

By J. BLAND SUTTON, F.R.C.S.

THE clinical signs of abortion or rupture of a gravid tube are sometimes so pronounced and so clear that they cannot be misinterpreted. Occasionally, however, the signs are so obscure that the most experienced have been deceived; but the graver source of error, in so far as diagnosis is concerned, lies in those abdominal conditions which simulate rupture of a pregnant tube. I have practised surgery long enough to have witnessed lesions of every organ in the female abdomen, except the adrenal, misinterpreted for rupture or abortion of a pregnant Fallopian tube.

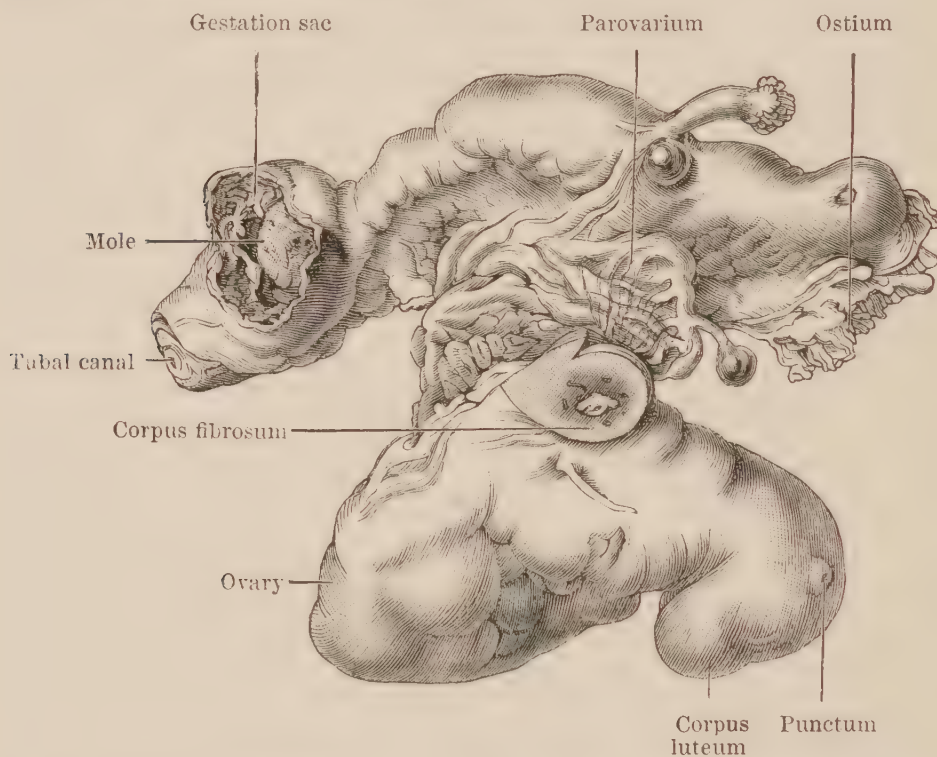
The two cases I propose now to describe illustrate very well the certainty and the frequent uncertainty surrounding the diagnosis of such a serious accident as rupture of a gravid tube.

CASE 1.—In the afternoon of January 9th a married woman, 35 years of age, whilst “trying on a dress,” suddenly felt something give way in her belly. She was assisted to a couch, and quickly became collapsed. She was removed to bed and Dr. Hazel administered the usual stimulants cautiously and ordered external warmth. At nine in the evening, as there was no evidence of reaction, Dr. Hazel decided to seek surgical aid, and asked me to see the patient, at the same time informing me that she had had two children, the youngest being 5 years of age. Since the birth of this child she had regularly menstruated until January; menstruation was due New Year’s Eve, but on this occasion merely a few drops of blood appeared, nine days preceding the seizure.

When I reached the house the woman was blanched and her lips blue, the voice reduced to a whisper, the pulse faintly perceptible at the wrist, and she complained of pain in the left iliac fossa. The belly, though somewhat distended, was dull to gentle percussion over a small area in the left flank. Liver dulness, normal. The uterus was slightly enlarged, its os patulous and the cervix soft. Some fulness could be perceived to the left of the cervix. The breasts furnished no evidence of pregnancy. Although the examination was conducted with extreme care and gentleness, it increased the collapse, and banished the pulse at the wrist. From the history and physical signs it seemed clear that the trouble was due to rupture of a very early gravid tube.

Help was obtained, and within an hour of my summons to the patient I performed abdominal section. On incising the peritoneum a broad stream of arterial blood leaped through the wound. On gently drawing

my finger along the left Fallopian tube I felt a slight pyriform swelling near its uterine end, and bringing it up we saw the rent in the tube as shown in figure. The parts were transfixed with a double silk ligature and removed. A large quantity of blood and clot was sponged out of the pelvis and the iliac fossæ, and the wound closed with sutures. Half an ounce of brandy and three ounces of water were administered by the anus, and repeated hourly during the succeeding 12 hours. The pulse returned at the wrist, the temperature increased, and in three days the patient was on a fair way to recovery. On the fourth day she felt pains in the pelvis and after a mimic labour discharged the decidua in shreds. As I had warned the nurse of this interruption no alarm was experienced, and convalescence was complete in four weeks.



An Ovary and Fallopian Tube. The tube had become gravid and burst.
(Natural size.)

The parts removed were hardened for histological investigation, and I carefully examined the clot, but failed to find either embryo or mole. Next day, whilst arranging the specimen for the purpose of having it sketched, I detected in the gestation sac a rounded body no bigger than a green pea, and at once recognised it as a mole. It was not disturbed, but allowed to harden *in situ*, and then the gestation sac and mole were embedded and sectioned. On microscopical examination this body was demonstrated to be a tubal mole, and many chorionic villi are seen in the sections. It is the smallest tubal mole which has come under my notice and measures 8 mm. in diameter.

Sections prepared from other parts of the tube show a normal lumen, but the epithelium is detached from the summits of the tubal plicæ. The abdominal ostium of the tube is unchanged. The ovary contained a very large true corpus luteum, and the punctum indicating the breach through which the ovum escaped from the follicle is very distinct.

The specimen is interesting in that it affords additional evidence in support of the view that when an oosperm (fertilised ovum) lodges in the uterine half of the tube, it is less likely to lead to occlusion of the abdominal ostium than if it be retained in the ovarian half of the tube. It also illustrates in a striking way the fact that primary rupture of a gestation sac near the uterine end of the tube is nearly always intraperitoneal, the bleeding is very profuse, and often fatal in the course of a few hours unless arrested by art.

CASE 2. Within 12 hours of dealing with the case just described, Dr. R. Marsden P. Low asked me to see with him a lady whom he had reason to suspect was suffering from a tubal pregnancy.

The patient was 35 years old, and had been married seven months. On January 8th she was seized with pain in the left iliac fossa, and at the same time there was metrorrhagia, two circumstances which led her to seek medical aid.

Dr. Low elicited the following facts:—The patient had missed two menstrual periods, and believed herself about three months advanced in pregnancy, and the condition of the breasts supported this view. The lower part of the abdomen to the left of the median line was occupied by a smooth, rounded, hard swelling, dull to percussion. On examining through the vagina, the cervix could be felt just within the vulva and displaced backwards, the os was patulous, the cervix soft, and blood, offensive in odour, escaped from the vagina. The fundus of the uterus could not be perceived above the pelvic brim, and the right half of the abdomen was resonant.

On visiting and examining the patient, it was easy to corroborate Dr. Low's observations, but the difficulty was to interpret them in a satisfactory manner.

It was clear that the patient was pregnant, but whether the embryo occupied the uterus or the broad ligament we could not determine; further, if the swelling in the pelvis was due to a mesometric pregnancy, the patient must have been woefully out in her reckoning. There was another complication I seriously entertained, viz., the presence of a tumour, probably ovarian, complicating pregnancy. The need of accurate diagnosis was pressing. Under these circumstances I did not hesitate to attempt to pass the sound, but the displacement of the uterus would not allow it to pass beyond 3 cm. without the exercise of force. It was therefore decided to examine the patient under chloroform the following morning and give her the advantage of the opinion of an obstetrician. Dr. Champneys kindly agreed to share the responsibilities of the case. During the night the patient discharged an embryo three months old, with its placenta. On arriving next morning one of the great difficulties in the case had thus cleared up, but on examining the abdomen the large tumour remained, and it was clear that we really had to deal with uterine pregnancy, complicated with either an ovarian tumour or a myoma of the uterus. On this head no positive diagnosis was possible, and we decided to let the puerperium elapse before proceeding to interfere with the tumour. A few days later serious symptoms occurred indicating grave trouble in the abdomen. The temperature fell suddenly to 96°, then rose to 103°, pulse 120 to the minute; the tumour became tender to touch, and the patient extremely ill.

On January 18th, nine days after the miscarriage, I performed abdominal section, and found a pedunculated myoma growing from the fundus of the uterus; this tumour was as large as a big cocoa-nut and adherent by recent adhesions to intestines and omentum. It was withdrawn through the incision and the pedicle clamped. This was by no means a simple proceeding, as the tissues were soft and easily lacerated; moreover, it bled freely around the wire of the clamp. The inflammatory products were sponged from the belly, the peritoneum adjusted around the pedicle, and the incision secured in three layers by sutures. The stump quickly sloughed, the clamp came away in 12 days, and convalescence continued uninterruptedly.

The tumour was a soft myoma which had become inflamed; softened, inflammatory, and necrotic tracts were displayed on the cut surface.

Apart from the clinical intricacy of the case it is interesting, inasmuch as it is an example of the successful removal of a uterine myoma during the puerperium.

Remarks.—I venture to place these cases in contrast because one illustrates the need of decision, the other the importance of deliberation. When a student, as I used to listen with reverential interest, not untinged with hero-worship, to hospital consultations, I would find myself fondly imagining what a wonderful panorama of cases resembling or simulating the one under consideration must be passing before the mental gaze of those wise physicians and surgeons thus assembled. As years passed on I had to painfully learn that my visionary serial picture was, as a matter of fact, a very blurred phenomenon; and that so far as diagnosis, supposed to be founded on experience, is concerned it is mainly based, not on the collected experience of a lifetime, but on the last case or last few cases resembling the one the subject of the consultation.

I have been told by those who occupy themselves in deciphering papyri that they are very apt to “read into” (or interpret) these curious ancient records in the light of our modern every-day knowledge.

That a similar danger besets young surgeons not tempered with experience but brimful of all the signs indicating disasters within the belly, as laid down in recent writings, is exceptionally true when applied to the diagnosis of tubal pregnancy.

When I came face to face with the second case recorded in this paper, flushed, so to speak, with a clinical victory, knowing full well how apt we are to read a new case in the light of the last which resembled it, and as there was no immediate urgency, and especially as the observed facts jarred with the patient’s

statements (she was a shrewd and intelligent lady), I reserved my judgment. That this course was justified is, I venture to think, substantiated by the ultimately happy issue of the case.

AN OPERATION FOR EXTRA-UTERINE GESTATION INVOLVING RESECTION OF FIVE INCHES OF SMALL INTESTINE—RECOVERY.

By LEONARD A. BIDWELL, F.R.C.S.

THE following case derives its chief surgical interest from a complication which arose during the operation, namely, rupture of the small intestine; the whole case is interesting in other ways. The following is a description of the case:—

A. M., aged 28 years, was first admitted into the West London Hospital on July 5th, 1894, under the joint care of Dr. Ball and myself. There was nothing of importance in the family history, and she had enjoyed good health prior to her marriage. She had been married 10 years, and had been pregnant three times; first a premature birth at six months, then a miscarriage at about three and a half months, and finally a full term male child who was born seven years ago, and is alive and healthy. Since this confinement she had been quite regular, up till the beginning of February, 1894.

Present Illness.—In February, 1894, she went a fortnight beyond her normal period, and about March 25th she had a severe attack of abdominal pain which lasted three days; since then she has been losing blood per vaginam every few days, and having slight attacks of abdominal pain; at the date of her periods these attacks of pain are more violent and more blood is lost, but not so much as at her normal periods.

There has been some swelling of the breasts, but no morning sickness; she has, however, suffered a good deal from flatulence. The abdomen has been increasing in size since April. There is no history of the expulsion of any decidual membrane. She thinks that she has felt foetal movements during the week prior to admission.

State on Admission.—The patient was a well-nourished and healthy woman, admitted with an abdominal tumour.

The lungs and heart were healthy, and the temperature normal. On examination of the abdomen, a swelling was felt in the left ileo-inguinal region; it was about the size of a cocoa-nut and elastic in consistence.

By vaginal examination it was found that the swelling, which was entirely unilateral, was continuous with the uterus, and could not be differentiated from it. The cervix uteri was soft, but not shortened. There was marked pulsation in the vaginal arteries, but examination was not painful.

After consultation with Dr. Moullin it was decided that, as the gestation had probably advanced beyond the fourth month, no operation should be performed at the present, but that the patient should be kept under observation. She left the hospital on July 9th, and reported herself weekly until the first week in October, when she discontinued attending as she felt sure that her pregnancy was a normal one, and she expected to be confined in the middle of November.

The abdomen continued to increase in size until the middle of October, since when it began to decrease; the foetal movements were felt occasionally until the abdomen began to decrease in size, but were not felt afterwards. There was occasional bloody discharge from the vagina.

About the beginning of November the patient suffered severe abdominal pain which bent her double, and there was considerable metrorrhagia at the same time; the breasts enlarged, and milk was secreted. These pains continued severe for four or five weeks, and ceased about December 8th, since when she had scarcely any pain, but her bowels had been very obstinate. She reported herself again on December 29th, and as it was clear that the foetus was now dead she was readmitted into the hospital on January 5th, 1895. She was then rather anæmic and emaciated, but her temperature was normal and her tongue clean.

The abdomen was enlarged to about the size of an eight months' pregnancy. There was dulness over the umbilical, hypogastric, and both iliac regions, but resonance in both flanks. The tumour extended to about 2 inches above the umbilicus, and was rather more prominent on the left side; the transverse diameter was the greater, and the tumour did not extend down into the pelvis. Its consistence was unequal per vaginam, being elastic in parts. The cervix uteri was not enlarged, but the

uterus could not be differentiated from the abdominal tumour, which was more readily felt on the left side. Her other organs were healthy, and the urine contained neither albumen nor sugar.

On January 10th, 1895, the patient was put under chloroform, and the abdomen opened by an incision 3 inches long in the linea alba. I had the benefit of the assistance of my colleague, Mr. Keetley, and of the advice of Drs. Moullin and Ball.

On opening the peritoneum, a tense shining cyst wall came into sight, and adherent to its upper and front part was the transverse colon and about 5 inches of the ileum. The transverse colon was easily separated from the tumour, but on attempting to separate the ileum the cyst was opened; a few ounces of greenish, turbid though inoffensive fluid escaped. It was therefore decided to leave the separation of the adherent gut until after the removal of the foetus and placenta; these were readily removed without any bleeding. The interior of the sac was then scraped with a sharp spoon and thoroughly cleaned out with sponges. It was then attempted to complete the separation of the adherent ileum from the upper part of the sac, but the adhesions were so dense that the muscular coat was separated from the gut and left attached to the sac; a rent, too, was made in the mucous membrane at one point, and this, too, when only the finger was used to separate the adhesions. Since the whole of the separated intestine was obviously seriously injured, it was decided to resect the whole of the portion which had been attached to the sac, instead of simply suturing the rent in the mucous membrane. After clamping the gut above and below the damaged part with small pieces of rubber tube commanded by catch forceps, I resected about 5 inches of the ileum; at Mr. Keetley's suggestion I adopted Maunsell's invagination method for joining the two ends; about 20 sutures were employed. The incision in the lower part of the gut was closed with four Halsted's sutures of fine silk. The anastomosis took about 25 minutes to perform, and was done outside the wound.

Some adhesions of the sigmoid to the sac were easily separated with the finger, and the greater part of the sac was then cut away; as it was found impossible to completely remove the sac, owing to its adhesions in the pelvis, its edges were stitched to the lower part of the abdominal wound, and the cavity stuffed with cyanide gauze.

A Keith's drainage-tube was inserted into the peritoneal cavity, close to the position taken by the intestinal anastomosis when reduced, and the rest of the wound closed with silkworm-gut sutures. Cyanide gauze dressings and wood-wool pads were then applied. The operation lasted about one hour and a half.

After coming round from the anæsthetic the patient had a great deal of abdominal pain, so a fifth of a grain of morphia was given hypodermically. Only hot water was allowed by the mouth for the first 12 hours, but nutrient enemata and suppositories were given alternately every three hours.

January 11th.—She had a fairly comfortable night, and the highest temperature was $99\cdot2^{\circ}$. The Keith's tube was pipetted four times, and, as only about 2 drachms of blood-stained serum were removed at each dressing, it was removed at the end of 24 hours. As there had been no vomiting, peptonised milk, beef-tea, and barley-water were given in 1-ounce doses by the mouth.

January 12th.—The patient's condition was excellent; there was slight abdominal distension, but the temperature was normal. Drinks of milk were allowed.

Her progress towards recovery was uneventful until the 17th of January, when the bowels were opened after a glycerine enema, although castor oil had produced no result. The temperature had risen to 100° , so the stitches in the sac were removed, and a drop of pus was seen at the upper end of the sac; a small sinus was found, into which a small tube was inserted. The remaining sutures were removed on the following day. The temperature remained normal after this, and the patient was taking her food well—fish, &c. Another dose of castor oil was given on the 18th, and in the afternoon of the 20th a copious discharge of liquid fæces occurred from the small sinus at the upper part of the sac. The abdomen was soft and not distended, but a hard lump could be felt in the left inguinal region about 2 inches from the wound; on pressing here some fæcal matter escaped from the wound; the lump evidently corresponded to the anastomosis. The patient was in no pain, and her general condition was excellent; she was then taking the ordinary hospital diet, and had two slight actions of the bowels on that day.

After this, the discharge of fæcal matter from the wound did not exceed 1 drachm at each dressing, and ceased on January 25th

The wound had completely healed with the exception of the sinus at the lower angle. On January 27th the temperature rose to 102°, and patient complained of abdominal pain; the bowels, too, did not act satisfactorily. No cause could be found for the rise of temperature, and it fell to normal the same day, but on January 29th there was another discharge of fæces from the wound. Since this there has been no further fæcal matter passed. A few days later a number of scybala were passed after copious enemata, and the patient had no further pain. She got up on February 3rd, three weeks after her operation, and went home on February 27th with the wound quite healed with the exception of a pinhole sinus about half an inch in length, from which there was scarcely any discharge. Some resistance could be felt just to the left of the incision, which I think indicated the position of the sutured intestine.

I have seen the patient several times since her leaving the hospital, and the wound has been healed some weeks. She has had no further difficulty with her bowels, and they act daily without medicine. She states that she feels better than she has done for years.

Description of the Fœtus.—The weight of the fœtus now is 3 pounds, but it was probably more when fresh. The length from vertex to heel is 14 inches. Its age was probably between 7 and 8 months; it had probably been dead for some time, as the skin was much macerated and discoloured. There is a peculiar deformity of the foot, the great toe is at right angles to the rest of the toes; and there is considerable varus of both feet. The placenta was of good size, but was very friable and full of discoloured clot.

The pregnancy, in this case, seems to have reached the eighth month, and there is a fairly good history of a false labour taking place at this period. It seems probable that the fœtus died before this false labour, as the tumour had begun to decrease in size a week or so before this. Since the fœtus appears to be of about seven and a half months' development, it must have been dead about 10 or 11 weeks before the operation.

The mere fact of an operation for extra-uterine gestation would not have induced me to bring this case before this Society, since operations for this condition are by no means uncommon; besides this case there have been four other cases operated on at the

West London Hospital within the last 18 months. These four, however, all occurred before the fourth month, and were all successful. An operation at this late period is, I believe, more uncommon, but I find two very similar cases have been recorded in the 'Obstetrical Society's Transactions' by Drs. Cullingworth and Phillips; in the latter's case it is mentioned that the small intestine was adherent to the sac, but was readily separated by the finger.

To me the chief interest in this case is the complete success of the intestinal anastomosis by the invagination method recommended by the late Dr. Maunsell. It also shows the importance of choosing healthy gut for an intestinal suture. Had I simply sutured the rent in the mucous membrane I should have entertained very little hope of success, whereas by resecting the whole of adherent and damaged intestine I had confidence in the result. Maunsell's method is now so well known that I need not describe it, but I would like to recommend it in all cases of end to end anastomosis. The only difference I have made in the operation is the substitution of Halsted's stitches for Lembert's in closing the incision in the intestine; I believe that the necessity for including the submucous coat in each suture cannot be too much emphasised, and I attribute my success in several cases of intestinal suture to attention to this point.

The question has been raised whether it was advisable to attempt to separate the intestine in this case, and whether it would not have been better simply to remove the foetus and placenta and to stitch the sac to the abdominal wall; but as the intestine was adherent to the upper and front part of the sac, the contraction following the healing up of the sac would have so pulled on this loop of intestine that chronic obstruction would probably have resulted; the sac also would have taken a much longer time to heal up. I therefore maintain that I acted rightly in freeing the gut.

With regard to feeding I treated this case in the same way that I always feed abdominal cases, and I do not consider that a sutured intestine is any bar to early feeding by the mouth. Peptonised milk, beef-tea, and barley-water were given in small doses on the day following the operation, and their quantity was increased on the next day; on the third day custard pudding was added, and on the sixth day fish or chicken was allowed.

The occurrence of the fæcal fistula is rather curious, since no fæces appeared till the tenth day, and the fæcal escape only lasted five days, with one recurrence four days later. The fæcal matter came along a sinus in the track of the Keith's drainage-tube; it may be that the end of this tube damaged the gut, as it was much too long; at any rate we were fortunate in having this track for the fæces to escape by.

In conclusion I wish to point out that, although such a case as this is usually considered as a gynæcological one, and is now claimed by the obstetric physicians, the difficulty and danger of the operation was in dealing with the adherent intestine, and this I consider is a purely surgical proceeding; the mere extraction of a dead foetus and placenta is not difficult.

I should mention that this patient was nursed, after the operation, in the general medical ward, and did not have the luxury of a special ward or of special nurses, both of which I consider quite unnecessary.

Mr. ALBAN DORAN asked for some explanation of the extraordinary amount of bleeding to which even a small gestation sac gave rise, mentioning that a few days since in removing a tubal sac at a very early stage he had happened to scratch it with his nail, and it bled furiously, although when the pedicle, which was small, had been tied there was no further trouble from hæmorrhage. It was true that a band passed from the sac to the vermiform appendix, which he secured with forceps and cut across on the side towards the appendix, and then when the sac was raised, the forceps slipped and the artery from the appendix spouted a great deal. He had frequently met with this condition. It not unfrequently happened that there was an adhesion, not to the appendix but to its mesentery, and the result was that the mesentery with the artery was drawn down. This, and not the connection with foetal sac, accounted for the hæmorrhage, because it did not seem to be the case that the normal vessels in the neighbourhood of a tubal sac underwent any changes, in fact on the uterine side of the sac in his case there were no vessels which gave any trouble. He raised the question how it was that cases of extra uterine gestation were at present of such frequency. Some few years since he had inspected a series of very elaborate clinical reports from one of the large general hospitals, prepared over 20 years ago, and there were not more than four or five out of hundreds which could be interpreted as due to the rupture of a tubal sac. He could not help thinking that for some reason this abnormality was becoming more frequent of late. In the second place, he said he would like to know what Mr. Sutton thought of the important question raised by Dr. Clarence Webster, of Edinburgh. Mr. Sutton had practically cleared up the subject of chorionic villi, and had shown how we could detect chorionic villi in blood clot, a point which was of the greatest diagnostic importance. It was taught by a distinguished surgeon that all inflammation of the tube caused desquamation of the epithelium, and

that then, and only then an impregnated ovum could graft itself on the walls of the oviduct. He observed that it had since been shown by Dr. Webster that decidual tissue formed in the healthy tube as an anomaly. Not only in women, but in mammals generally decidua developed under the epithelium of the uterus after impregnation. In many of the higher mammals that formation extended to the ostium of the tube. Dr. Webster had shown that in woman this change occasionally involved the parenchyma of the tubes themselves. Whether this was the case he himself could not say, but it looked as if decidua frequently formed in the human Fallopian tube. When the ovum touched the epithelium of the endometrium after impregnation, when decidual tissue was beneath it, some mechanism determined the shedding of the epithelium covering this tissue. The same result occurred when decidual tissue formed in the tube. He did not think, however, he could see any decidual tissue in Mr. Sutton's specimen. This destruction of epithelium was, however, the result, not the effect, of tubal gestation. Inflammatory diseases of the tubes did not explain the frequency of tubal gestation. Moreover, when tubal gestation began, the inflammatory changes in the tube, as well as the shedding of its epithelium, were consequent on the tubal gestation. He pointed out that the inflammatory changes that occurred in a tube containing a gestation sac were quite of a different type to those resulting from gonorrhœal infection, &c., for in primary inflammation the ostium was rapidly obliterated, while in tubal gestation the ostium often remained patent throughout, consequently we often found that the ovum or a quantity of clot might be shot out through the tubal ostium. It was, therefore, quite a different thing to remove an inflamed tube and one that contained a gestation sac.

Mr. HARRISON CRIPPS observed that the question of operating must depend on the diagnosis. One generally described two varieties of tubal rupture, one at the upper or free border, which discharged directly into the peritoneal cavity, the other through the lower border, when the blood was effused between the layers of the broad ligament. So far as his experience went, in nearly all the cases of the former class in which the hæmorrhage was unrestrained, the patient would bleed to death, unless the surgeon interfered to put a stop to the hæmorrhage. When, however, the rupture led to hæmorrhage into the broad ligament, spontaneous arrest followed, as the internal pressure increased, and most of these cases called for no surgical treatment at all, the hæmorrhage becoming arrested, and the blood already effused undergoing absorption. Hence the importance of deciding in which direction the rupture had taken place. The symptoms of rupture into the peritoneum were quite clear; there was sudden pain, not very intense, with marked collapse, yet, *per vaginam*, no tumour could be felt, at most an obscure puffiness in Douglas's pouch. There was nearly always dulness in the flanks, such as one might expect from the effusion of blood into the peritoneum. When the bleeding was into the broad ligament, the pain was always a great deal more acute, and was associated with constant bearing-down sensations, while the general symptoms of shock were not so severe. On examining the patient, there could be felt a tumour situated in one or other side of the uterus, and on deep palpation this tumour might also be made out in one or other iliac fossa. In the cases of hæmorrhage into the peritoneal cavity the surgeon ought to interfere at once, but the broad ligament cases were best left to nature. There was, however, a third class of cases of which he had had some examples during the last

year or two, cases in which the hæmorrhage was not free into the peritoneal cavity, but was practically limited to Douglas's pouch, the omentum having sealed it down into the pelvis by having contracted adhesions to the top of the uterus, in front and behind, to the rectum. The omentum in fact formed the lid of a cavity containing blood clot, and probably also the foetus. Probably there had been in the first instance some trivial hæmorrhages, sufficient to set up inflammation in the neighbourhood of the gestation sac, and thus sealing the omentum over that part, a more considerable hæmorrhage subsequently following. He had some doubts as to the best method of proceeding in this class of cases, but believed it best to operate. He referred to a case of the kind which had come under his observation a week previously. At first the hæmorrhage seemed to be limited to Douglas's pouch, things quieted down for a week or 10 days, and then there was a fresh attack which constrained him to operate. In the three cases of the kind he had seen, they had rather suspected, from the feel of the tumour, that the hæmorrhage was in that position, for there was no dulness in the flanks, and the tumour could be felt but indistinctly. Per vaginam, Douglas's pouch was occupied by something very soft, unlike the firm feel of blood extravasated into the broad ligament. He had been very much interested in the remarks that had fallen from Mr. Sutton as to the difficulty of diagnosis, but they were not exactly in accord with what he himself had observed. As to Mr. Bidwell's case, when he had found the intestine adherent to the sac he had attempted to break down the adhesions, thus opening the intestine. That he felt sure was a mistake, and he thought it was better surgery to cut off the piece of sac and leave it *in situ* rather than face the risk inherent to excision of a portion of the intestinal wall. He had adopted this plan on two or three occasions in ordinary ovariotomy without inconvenience.

Dr. HERMAN thought that cases in which primary rupture of the gravid tube caused bleeding enough into the peritoneal cavity to cause death were rare, if indeed they ever occurred. In almost every case in which this seemed to have taken place, there had been previously slight hæmorrhages into the peritoneal cavity, as set forth in the last group of cases described by Mr. Cripps. That opinion he based on the fact that in all cases he had seen or read of, clots of different ages had been found in the abdomen, showing that there had been more than one hæmorrhage. He referred to a very interesting paper by Mr. Taylor of Birmingham, in reference to these slight hæmorrhages. If there were reason to believe that there had been repeated attacks of hæmorrhage, he thought it was better practice to open the abdomen forthwith, without waiting for a more severe hæmorrhage. As to the cases of hæmorrhage into the broad ligament, in which operation was not called for, he recalled that Mr. Tait had pointed out a most distinctive feature, viz., that processes of cellular tissue going from the uterus on each side of the rectum back to the sacrum became infiltrated with blood, forming a semicircle round the rectum. This semicircle he had been able to make out distinctly on various occasions, for it occurred not only in hæmorrhage into the cellular tissue, but also when the cellular tissue of the pelvis was inflamed.

Mr. CLUTTON opined that many of these cases of rupture of the tube, leading to hæmorrhage, were not recognised, and so came into the hands of the general surgeon. He had seen a number of these cases diagnosed as rupture of this or that viscus. In the last case of the kind, he did not see how anyone could have diagnosed the case from one of strangula-

tion of the small intestine, or of perforation. The patient was a lady 40 years of age, who had had no child for 12 years, and she had been assured by Dr. Matthews Duncan that she could not have any more children. Menstruation had been regular, and she had a very large and firm uterine fibroid. She was seized with violent vomiting and faintness, and from that time, until he had seen her, had passed neither flatus nor fæces. It was clearly a case of some intra-abdominal trouble, and he opened the abdomen. To his surprise, on opening the abdomen, a large quantity of blood escaped, for which, he confessed, he was not prepared, inasmuch as he had not entertained the idea of its being a case of ruptured tubal pregnancy. The case was easily dealt with in the usual way, but it led him to reflect that there must be many cases of the kind which did not come into the hands of gynæcologists, because the nature of the condition was not diagnosed. With reference to Mr. Bidwell's case, he thought that resection of the intestine was rather a severe measure, but he supposed he would explain why he had adopted this course. He asked where Mr. Bidwell supposed the fæcal fistula formed. This was important, in view of the fact that he had thought proper to depart from the usual Lembert suture.

Dr. LEWERS said that three years ago he had operated on a case of ruptured tubal gestation at about the third month. The abdomen was full of blood, and contained a foetus about three months' development, floating in the peritoneal cavity. He removed it and the tube in the usual way, and the patient made a good recovery. The interesting point about the case was that a year or so later the lady returned with apparently the same train of symptoms as before. He had examined her from time to time, and was therefore cognizant of her condition, that is to say there was no tumour in the hypogastric region, and the uterus had returned to the normal size. She came, on this second occasion, with metrorrhagia, pain in the left side (the previous gestation having been on the right), where there was a distinct swelling, with another one in the middle line, evidently an enlarged uterus. There were also changes in the breast. It looked, therefore, like a second tubal gestation in the opposite tube. He recommended a second operation, and she went into a home for the purpose. The day before the operation she passed a blighted ovum, about the size of a hen's egg, which contained no foetus, though the shaggy villous covering left no doubt as to its nature. The discharge of this body made no difference to the size of the tumour on the left side, which he concluded to be an ovarian tumour, so the preparations for the operation were not interfered with, and this it turned out to be. The tube on the left side proved to be quite patulous; and it followed that the left ovary, though it had become cystic to the size of a cocoa-nut, had been able to produce an ovum capable of impregnation. Another curious feature was the rapid growth of this ovarian tumour, for it was certainly not enlarged on the occasion of the previous operation, or it would have been removed along with the ruptured tube.

Mr. BLAND SUTTON, in reply, said it was a matter for congratulation that surgeons were taking an interest in these cases; he did not for a moment believe they were more common, but that they were oftener recognised. Formerly they were called hæmatocèles; but, since the tubal mole has been recognised, the dependence of these sudden intra-peritoneal hæmorrhages on tubal pregnancy has been established. Many cases of sudden abdominal collapse and death in a few hours due to abortion or

rupture of a gravid tube, have excited suspicions of poisoning, and been made the subject of coroners' inquests. Such cases do not come into hospital; they are too ill to be moved. Patients with bleeding into the broad ligament survive the shock, and are subsequently admitted into the hospital; by rest, the blood quietly and slowly absorbs; as a rule, these do not require operation. The third class of cases, described by Mr. Cripps, are well known. Bleeding, small in amount, from a gravid tube, floods the recto-vaginal space with blood, and floats up the small intestine and omentum; these adhere, and form a roof to the fossa; into a space thus formed, bleeding may happen again and again. This condition gives excellent results when submitted to operation.

Mr. BIDWELL, in reply, explained, in reference to the resection of the intestine, that he had separated the adhesions with the finger, and that, at the beginning, they were easily separated, but gradually became more difficult, until finally the gut was ruptured. He thought that, in this particular case, the resistance of the intestinal wall was somewhat below normal; in fact it was macerated in the same way as the foetus was. In any event he preferred to resect, rather than to leave a septic portion of sac wall in the abdominal cant. He had used Halsted's suture before, in several cases, with the best results. He did not think there could be any question that the fæcal fistula originated in the Halsted's system, but that it formed in consequence of Maunsell's procedure; seeing that in the latter method, the sutures penetrated all the coats, and fæcal matter might have leaked through one of the suture tracks.

April 22nd, 1895.

CASE OF SEROUS EFFUSION INTO THE PLEURA OF EIGHTEEN MONTHS' DURATION.

TREATED BY REPEATED PARACENTESIS, AND SUBSEQUENTLY BY FREE
INCISION, PROBABLY TUBERCULOUS IN ORIGIN, AND ASSOCIATED
WITH CHRONIC ASCITES; RECOVERY COMPLETE, WITH RE-
EXPANSION OF THE LUNG AND LITTLE CONTRACTION OF THE
SIDE.

By SAMUEL WEST, M.D., F.R.C.P.

IN June, 1893, I was asked to see Miss B. P., aged 31, whose abdomen and right side of the chest had been full of fluid for more than 12 months. The object was to obtain my opinion as to whether anything could be done to relieve her.

It appeared that until September, 1891, she had been in perfect health, and was active, energetic, and athletic. She then began to

feel weary and lose her usual energy. In October she became troubled with severe pains in the abdomen, which came, on and off, both night and day. She had a good deal of discomfort after meals and the abdomen increased in size. In November ascites was diagnosed, which, in December, was stated to be of a tuberculous nature. She was treated by rest, local inunctions, and tonics. She was now troubled with a good deal of obstinate diarrhœa, and she lost weight and strength rapidly. On January 2nd, 1892, she first felt pain in the right shoulder, and a few days afterwards a small pleuritic effusion on that side was diagnosed. From this time until March she was in bed, but made no improvement. The fluid in the abdomen and pleura had greatly increased, and at Easter the question of paracentesis was raised, but, after consultation with two other doctors near her home, it was decided against. As far as I can learn, the opinion was expressed that the case was one of widespread tuberculosis, and therefore unsuitable for any operative interference. The patient was allowed to get up daily and to drive out whenever the weather was favourable.

All this time she dragged on a miserable existence, the abdomen being of considerable size and the cause of great discomfort on account of the weight, while the breath was very short. She became wasted almost to a skeleton, and her family was informed that she could not recover.

From July to December she remained *in statu quo*, the question of paracentesis was raised more than once, but each time decided against.

During the next three months she improved, and was able to go out daily for a drive or short walk; but in the spring the fluid increased, and she was sent up to London to see me in June, 1893. I found her then greatly wasted, little more than skin and bone, and looking like a patient with advanced phthisis. The temperature was normal. The abdomen was full of fluid and greatly distended, though the walls were lax. The right pleura was also full of fluid and was dull to the clavicle, the heart being displaced as far as 1 inch outside the left nipple line.

The family history was bad. An aunt on the mother's side and an uncle on the father's side had both died of phthisis. She was one of five children; one sister died not long ago of acute phthisis, and one of her two brothers had been phthisical for some years.

The questions put to me were : " Ought she to be tapped ? and what prospect was there of doing her any permanent good, the fluid having been permitted to remain so long without interference ? "

In answer to the first question, it seemed clear to me that she ought to be tapped at once. In respect to the second question the answer was much more difficult ; in the first place there was no doubt in my mind that the affections both of the abdomen and pleura were tuberculous in origin, but the prognosis was very different in the two cases. Tapping the abdomen was certain to give great relief, and it was quite possible that even after a single tapping the fluid would not return. This opinion was a great encouragement to the patient, for she attached more importance to the condition of the abdomen on account of the disfigurement it produced than she did to the state of the chest. In respect of the pleura the prognosis was doubtful, for all depended upon the extent to which the lungs might re-expand ; and considering that they had been compressed by fluid for more than 12 months, it was most likely that they were bound down by adhesions, perhaps even permanently. Under any circumstances the paracentesis would have to be repeated ; and recovery, if it took place at all, would be a question of time.

It was decided that she should remain in London and be under my care. Accordingly accommodation was found for her, and in the beginning of July I tapped the abdomen, removing about two gallons of clear serous fluid. She was of course kept entirely in bed and fed liberally. I can dismiss the abdomen now from further consideration, for the fluid never returned and the single tapping cured the ascites.

On July 13th I tapped the right pleura, not using the aspirator but an ordinary needle with a tube to the floor. Ninety ounces of clear serous fluid were removed easily. I was pleased and surprised to find that the lung appeared to come freely out, the heart's apex returning nearly to its normal place, resonance and breath sounds reappearing over the upper part of the right side as far down as the fifth rib.

That the lung should re-expand to this extent spontaneously without the use of any suction with an aspirator seemed to me very hopeful and encouraging. The fluid removed from the pleura was clear serum, specific gravity 1018, and almost solidified on

boiling. The patient was greatly relieved and inspired with fresh hope.

The history of the case from this point for a long time consists in a record of repeated tapplings of the pleura and of rapid recovery of flesh and strength. It was quite remarkable how rapid the improvement was with simple nursing after the removal of the fluid. The following is a record of the tapplings of the pleura :—

| Date. | Operation. | Oz. | Remarks. |
|---------------------|--------------|-----|-------------------------------------------------------------------------------------------------------------------------|
| July 13th..... | Paracentesis | 90 | With syphon. |
| „ 19th..... | „ | 110 | |
| August 3rd | „ | 103 | |
| „ 14th | „ | 100 | |
| September 5th..... | „ | 120 | |
| „ 14th..... | „ | 50 | |
| „ 25th..... | „ | 50 | |
| October 2nd | „ | 60 | With the aspirator. |
| „ 9th..... | „ | 15 | With the syphon; no more with the aspirator, but fluid was evidently left. |
| „ 16th | „ | 60 | With syphon. |
| „ 30th | „ | 23 | With aspirator; some air passed into the pleura. |
| November 16th | „ | 90 | With syphon. |
| „ 27th | „ | 72 | With aspirator. |
| December 8th | „ | 40 | „ |
| „ 15th | „ | 30 | Aspirator used henceforth.* |
| „ 22nd | „ | 40 | |
| „ 27th | „ | 30 | |
| 1894. | | | |
| January 4th..... | „ | 30 | |
| „ 11th | „ | 30 | |
| „ 19th | „ | 22 | Fluid a little blood-stained. |
| „ 26th | „ | 25 | Fluid difficult to find; canula seemed to touch lung easily on all sides. |
| February 1st..... | „ | 15 | |
| „ 13th..... | „ | 8 | |
| „ 22nd | „ | 9 | |
| March 2nd | „ | 62 | There had been a good deal of pain in the right side and shoulder during the last week, but the temperature was normal. |

* The needle was inserted in the eighth space in the posterior axillary line. It always caused pain felt at the spot, but most in the epigastrium, due no doubt to the intercostal nerve being irritated by the needle. The ribs were now so close together that it was difficult to introduce the needle. The side had very greatly contracted, and the heart had long been in its normal place.

| Date. | Operation. | Oz. | Remarks. |
|-----------------|--------------|-----|----------|
| March 8th | Paracentesis | 28 | |
| „ 16th | „ | 42 | |
| „ 22nd | „ | 28 | |
| „ 29th | „ | 27 | |
| April 5th | „ | 33 | |
| „ 13th | „ | 24 | |
| „ 19th | „ | 15 | |
| „ 26th | „ | 17 | |
| May 7th | „ | 35 | |
| „ 15th | „ | 35 | |
| „ 22nd | „ | 33 | |
| „ 29th | „ | 35 | |
| June 5th | „ | 30 | |

For the first three or four months she was kept rigidly in bed, but then was allowed to get up, though remaining in her room. Towards the spring she went into another room, and when the days were fine went out at first in a bath chair and later walking. As the summer came she was able to go some distance without fatigue or shortness of breath. She had become quite fat, and looked in excellent health, as indeed she felt.

There was no appreciable difference between the two sides, and the movements were almost equal. The breathing was natural over the whole side except at the base behind, where the sounds were deficient. The fluid seemed to be confined in a small pocket in the mid axilla. There had never been any rise of temperature, and the fluid remained serous throughout. I felt no doubt that in time recovery would be complete. However, the length of the case and the expense to which the parents were put in consequence rendered them impatient, and at last it came to this—that either she must go home as she was, or something else must be done to accelerate the cure.

There was of course but one other thing to do, and that was to open the side. This would in all probability convert what was a serous effusion into an empyema, and I naturally shrank from that, especially with the strong family history there was of phthisis, and the certainty that the disease in the patient was of tuberculous origin. Over and above this risk there was another to be reckoned with, namely, the danger of exciting a fresh outburst of tubercle in the lung or elsewhere. It seemed also to me too bad to expose

the patient to all these risks, considering the good state of health in which she was. Moreover, there was a complete uncertainty whether the operation would have the desired effect of really expediting the cure, supposing that the patient escaped the risks referred to. At the same time it seemed probable that the pleural cavity was in great part obliterated, and that if the chest was opened and an empyema produced it would only be a local empyema that would have to be dealt with. What I chiefly dreaded was a fresh outburst of tubercle. I pointed out that the operation would certainly necessitate a further stay in London of quite indefinite duration. However, after having all the *pros* and *cons* placed before them, the family decided that the operation should be done, and with great misgivings I consented.

A few days later, in the first week of June, 1894, the side was opened by my colleague, Mr. Bowlby, by a free incision along the seventh rib in the posterior axillary line, a portion of the rib being removed. A pint or more of fluid escaped, and, to my surprise and disappointment, the lung was found not to be adherent anywhere, so that it collapsed entirely. The operation was perfectly simple, and the side was dressed with antiseptic dressings.

The next day the temperature began to rise and in the course of a week became markedly hectic, rising to 102° or 103° every night. The fluid discharge from the side, which for a few days remained serous, gradually changed its character and became purulent. The opening was quite free, and there was no retention, so that some other cause for the rise of temperature had to be looked for, but none could be found, and I began to fear that what I had dreaded had come to pass—namely, that the operation had led to an acute outbreak of tuberculosis.

The patient rapidly lost flesh and strength, became wandering and almost delirious at night, and appeared to be going down hill as fast as she could, and that without any obvious reason—at any rate, as far as the empyema was concerned—for the discharge was never large, remained sweet throughout, and there was no retention.

So this went on from day to day, until on my return from my holiday at the end of July, I was shocked to see the condition to which the patient was reduced. She was wasted as thin as a skeleton, and looked very ill and feeble. The temperature still remained high, though it rarely passed 102°. Now for the first

time some pleuritic friction with fine crepitation was discovered at the left base, and this seemed to confirm the fear that the fever was due to the development of tuberculosis in the lung, so that I now began to feel almost in despair about my patient, and to regret bitterly that I had consented to allow the operation to be done, for it was sad to compare her condition now with that at the time she was placed upon the operating table.

She remained in a critical condition for some two or three weeks longer, and then began slowly to mend. The temperature fell, and gradually the fever left her. She began to gain flesh and strength, and by September it became clear that after all she was going to get well. From beginning to end there had been no reason to complain of the side; that had gone on uninterruptedly well, the discharge had become less and less, the cavity smaller, the side was contracting slowly, and the lung expanding. Nothing now remains to report except a steady and continued improvement until the patient was sent home in time to spend Christmas with her family. On leaving London her weight, which at her worst had been no more than 6 stone, had risen to $9\frac{1}{2}$ stone. She looked well and was strong, and the condition of her lungs was as follows:—The right side was a little contracted, but not much. The cavity in the pleura had entirely disappeared except for a long narrow track, in which the tube lay running apparently above the diaphragm in the direction of the ensiform cartilage; the greater part of this did not measure more than half an inch in width except just within the ribs, where a shallow cavity, about 1 inch in diameter, lay. Over the whole of the side the breath sounds were audible, and there was no definite impairment of percussion anywhere except at the base behind and in the axilla.

I have since had reports of her progress. The tube is now only about 2 inches long, and the cavity has almost closed. She feels perfectly well, and able to walk about when the weather permits, and looks as well and strong now as she did before her illness. The opposite lung is, as far as can be judged, quite healthy, and nothing to suggest phthisis has developed in either lung.

The case presents many features of interest. In the first place, it is astonishing that nowadays a patient should have been left so long with her chest and abdomen full of fluid and no attempt have been made to relieve her by tapping. I suppose this was due to the persistence of the old fallacy that fluid effusions in the pleura

check the progress of tuberculous disease in the lung—a theory for which there is little foundation, and which will certainly lead to grave errors in practice if applied as a general principle. Even if this explains the leaving of the chest so long untapped, it does not explain why the fluid in the abdomen was not removed. A single tapping cured this at once, and there is no reason why the same success should not have been obtained long before.

The chief points of interest centre, of course, in the pleura. They are the following:—

- (1) That after the pleura had been full of fluid for 12 months and more the lung should not be bound down, but should be capable of rapid re-expansion.
- (2) The number of times the side was tapped, and the probabilities that complete cure might in the end have been obtained in this way.
- (3) The fact that after 37 tapplings the fluid remained clear and serous as at the first, and that, too, in spite of air having been admitted more than once into the pleura.
- (4) The opening the side for a simple serous effusion.
- (5) The ultimate complete recovery, with practically no deformity and perfect re-expansion of the compressed lung.

1. It is certainly remarkable that a lung which has been completely collapsed by an effusion of tuberculous origin for more than 12 months should have contracted no adhesions, and should be capable of immediate re-expansion on the removal of the fluid. The discovery of this on the first paracentesis made the prognosis at once much more favourable.

2. In respect of the number of times the pleura was tapped, I do not know of any instance in which paracentesis has been so frequently performed. Yet it is clear that there were only three courses open: (1) To leave the patient alone after the first two or three tapplings had failed to cure; but in that case the patient would soon have been as bad as before. (2) To open the side, an operation rarely done for simple effusion, and not to be lightly decided on. And (3) to do as I did, to repeat the paracentesis as often as might be necessary. The result fully justified my decision to try to cure the case by repeated tapplings, for the simple removal of the fluid caused the most striking and rapid amelioration of the patient's condition; she was not only relieved of all

her distressing symptoms, but rapidly gained health and strength. The fluid steadily decreased in amount, and I believe if the patience of the family had not become exhausted paracentesis would have ultimately cured her. If she had lived in London, so that the expense of providing accommodation for her had not had to be considered, I should not have consented to any other measures, but in this case, as in so many others in practice, what had to be done was not the best absolutely, but the best possible under the circumstances.

3. The fact that after so many tappings the fluid remained clear and serous as at the beginning, is another evidence of the safety with which these operations may be done if ordinary care be taken to use clean and carefully disinfected instruments. I always used my own instruments, which I strictly disinfected myself, both before and after using. One used to hear of the risk of converting by paracentesis a serous effusion into a purulent one, but that was due not to the operation, but to the dirty instruments used, and if such a result followed paracentesis now, I should hold the operator, and not the operation, to blame.

4. The deliberate opening of the side for a simple serous effusion has, I believe, been rarely practised, and rightly; for do what we will it is practically impossible, I believe, to prevent the effusion becoming purulent. That certainly happened, at any rate, in this case, in spite of the strictest antiseptic precautions. In this case, with so strong a tuberculous history in the family, and with the strong presumption that the disease was of tuberculous nature, it seemed especially desirable to do nothing which might lead to an empyema. So I resisted the pressure put upon me to open the side as long as I could, and it was only after putting the whole case before the family and insisting that they should share in the responsibility of the decision that I at last consented. My fears were fully confirmed, for although I did not confess it, I felt many times tempted to despair of her recovery, and to reproach myself for having yielded to the pressure put upon me. So far as the operation was concerned it was a complete success. The anxiety was caused, not by the condition of the pleura, but by the general condition of the patient, and this still remains a puzzle to me, for I cannot see any plausible explanation of the fever and rapid failure of health. There was not enough discharge to account for it, and there never was any retention of pus. Still

there is the fact that she nearly died, and at times I felt almost without hope of getting her through. No signs of tubercle ever developed, and except for the effects of her pleurisy the patient seemed sound.

5. Not the least remarkable part of the case is the complete *restitutio ad integrum*. There is now but very little external deformity, the lung has expanded, healthy breathing is audible everywhere, and I believe that when the tube is at last out there will be little but the scar to show what has been the matter. Yet the lung was completely compressed for about 18 months, and another 18 months were spent in getting well.

Dr. F. DE HAVILLAND HALL believed that the case was quite unique judging from his own experience and reading. He recalled that two years ago, in conjunction with Mr. Goodsall, he had recorded a case in which he had tapped 13 times, withdrawing in all some 705 fluid ounces of serum. In that case there was reason to suspect a syphilitic origin of the pleurisy. He had long since made up his mind never to consent to the opening of the chest in patients with simple serous effusion, and even the fortunate issue in the author's case would not induce him to depart from that rule. If necessary he would go beyond 37 tapplings should any case call for repetition. He agreed with what had fallen from the author, however, that one was often constrained to do, not what was best for the patient, but what was best under the circumstances. The perilous condition through which the patient had passed after the chest had been opened, would tend to confirm the opinion which was generally held as to the undesirability of opening the chest in simple serous effusion. So long as the discharge remained serous tapping should be continued, but if it became purulent the probability was that the change was due to some fault on the part of the operator. He disagreed with what the author had said with respect to the possibility of empyema setting up tuberculosis, and he recalled that some years since Dr. Barrs, of Leeds, had published a series of cases of pleuritic effusion admitted into the Leeds Infirmary during a period of five years. Dr. Barrs had observed that of the cases of simple effusion—meaning thereby all cases in which at the time of admission there were no symptoms pointing to tubercular origin—nearly one-half died, the majority of pulmonary or other tuberculosis. In empyema the mortality was not nearly so large, and the proportion of deaths from phthisis was only a small fraction of the total mortality. He argued, therefore, that the conversion of a simple serous effusion into an empyema would not necessarily tend to increase the risk of tuberculosis, that at any rate was the inference which Dr. Barrs had drawn from his cases, and with that deduction he himself saw no reason to disagree.

Dr. ROUTH pointed out that opening the abdomen often had a curative effect in cases of peritoneal tuberculosis, a fact that had been exemplified in many operations on the abdomen undertaken under a mistaken diagnosis in which the evacuation of a quantity of fluid had been followed by definitive recovery. He did not see why this rule should not apply to effusions into the pleuræ, and this view was confirmed by the case which the author had related. No tuberculosis of the lung proper had

followed though the patient had been tapped repeatedly, and the patient was at present quite well. So far as it went, the observation tended to confirm the wisdom of operating in these cases.

Dr. S. COUPLAND (the Vice-President in the Chair) said that in respect to the number of tapplings the case was probably unique in the annals of pleural paracentesis. There was one question that always came into his mind in dealing with a recurrent effusion like that one—viz., whether it could strictly be called an inflammatory effusion, tubercular or not. One always looked upon obstinate effusions as being rather of the nature of dropsical accumulations, due to some interference with the local circulation. That had been very much impressed upon him by a case of effusion following an attack of typhoid fever in a girl. The patient developed signs of pleural effusion on the right side which was at first thought to be inflammatory, probably tubercular; but as it was associated with evidence of thrombosis in the jugular vein, he ultimately came to the conclusion that these two things were connected, and that there was extension of the thrombosis to the innominate and arygos vein, and that the effusion was dropsical. As a matter of fact, it turned out to be so, the arygos being plugged at its termination. He did not intend to convey an impression that such a condition was at all likely to have been present in the case brought forward by the author, but it was remarkable, and somewhat inexplicable, that the effusion should have been so persistent. He asked whether any blood occurred in the fluid, although the presence of blood in a pleuritic effusion was perhaps not now considered such a certain proof of its being tubercular as formerly. On the other hand it was well known that many of these cases of so-called "simple" effusion were really of tuberculous origin. He agreed with the author as to the undesirability of resorting to free incision after failure to cure by simple paracentesis repeatedly used, and could but endorse what had been said as to its danger. He had gone through that experience himself in an obstinate case, and the results were for the time almost as bad as in the author's case, though the patient ultimately recovered. They were indebted to the author for bringing this case forward, because it would serve as an encouragement to them in the future to persevere in paracentesis, and not abandon hope of obtaining an eventual cure.

Dr. WEST, in reply, said he thought the case for tuberculosis in this instance was very strong, taking the family history into account. He mentioned that on one or two occasions the fluid was distinctly blood-stained, but, of course, that was merely accidental. He held that there was no risk whatever attending tapping any number of times if the instrument were kept perfectly aseptic, and the advice still contained in current text-books, that if a case resisted two or three tapplings this should be given up, required to be modified. He did not think that the question of the effusion being dropsical or inflammatory, had much importance in his case at the time he saw the patient. The illness was probably of acute onset so far as could be gathered, and it was probably a case of inflammatory effusion at any rate in the first instance. There was no active inflammation when he saw the patient, but that did not go for much, seeing that it was common enough for the effusion to continue after the original inflammation had subsided. He did not suppose that any one at the present day would have many opportunities of dealing with such cases, for it was difficult to imagine water being deliberately left in the chest for so long a period of time. Dr. Hall had misunderstood him; what he intended to convey was that tapping might render the effusion

purulent, and not that empyema *per se* was likely to determine tuberculosis, though, of course, any disturbance in a tuberculous patient might determine an outbreak of the disease. With reference to the analogy Dr. Routh suggested of tubercular peritonitis, he pointed out that most of these cases of abdominal tuberculosis got well after simple tapping, and there was no necessity for opening the abdomen. When pus was present that was, of course, quite another matter.

A CASE OF SCLEREMA NEONATORUM ENDING IN RECOVERY.

By ARCHIBALD E. GARROD, M.D. Oxon., F.R.C.P. Lond.

SCLEREMA NEONATORUM is so rare a disease, and when met with so seldom has any but a fatal ending, that I venture to publish a case which has been recently under my care, and which ended in complete recovery, believing that in the present incomplete state of our knowledge of this and allied conditions the period has not yet arrived when such records are superfluous.

The patient, a male infant aged 5 weeks, was brought to the out-patient department of the Hospital for Sick Children at Great Ormond Street, on November 5th, 1894. The mother, a healthy-looking woman, stated that this was her third child. Of the other two the elder was strong and well, but the second died in consequence of a fall at the time of its birth. The last pregnancy was preceded by a miscarriage at the third month. The father was said to be healthy. The family occupies three rooms on a first floor, and no history of privation was obtained. The infant was born at full term, the head presented, and there was no particular difficulty at the birth except that the hæmorrhage was somewhat excessive. He was a well-nourished and, except in one respect, a healthy child. There was not, and had not been, any rash upon the buttocks or snuffles. The child was being suckled by his mother, who had an abundant supply of milk, which he took regularly and well. The back of the infant presented a remarkable induration, which extended, like a kind of carapace, over almost the entire dorsal aspect of the body, involving the deltoid regions and upper arms, the buttocks, and the thighs down to and including the popliteal spaces. The skin of the face, front of the trunk, and limbs was perfectly soft and natural. The edges of the indurated area were sharply defined,

irregular, and map-like, and there was nowhere any tendency for the hardened to merge into the healthy parts. The skin over the affected parts was stretched, but not shiny, and in places exhibited a pink mottling; it could not be pinched up between the fingers; pressure produced no pitting, but merely rendered the surface pale for a time. The distribution of the induration was remarkably symmetrical. The legs could not be fully extended either at the hips or knees, and when extension was attempted the skin in the popliteal spaces became very tense and shiny. There was no swelling, œdematous or other, of the hands or feet. The child was good-tempered, and the examination did not appear to cause it any pain or discomfort. There were no signs of any disease of the heart, lungs, or other viscera, and there was no intestinal disturbance. The urine was not examined. It was stated that the induration upon the buttocks was noticed immediately after birth, and the places were at first of a deep pink colour. During the first nine days of life the hardness spread down the thighs, but as far as could be ascertained the extension to the back and arms only took place during the fifth week, just before the infant was brought to the hospital, by which time the colour of the affected parts had become much paler than formerly. No history of any surface exposure to cold air or water could be obtained. Inunction of a drachm of cod-liver oil night and morning was prescribed. The note of November 12th, a week later, states that the induration in the dorsal and lumbar regions was rather less marked, but there was no noticeable change in other parts, except that the redness had practically disappeared. The general health continued good, the infant sleeping and taking his food well. There was no coldness of the skin or extremities, and the temperature taken in the rectum was 98·2° F. On this date inunction of blue ointment was ordered in place of the cod-liver oil. By November 19th there was decided improvement in the local condition. The skin of the back, although it appeared stiffer than that of the normal parts, no longer exhibited marked induration; the hardness in the deltoid regions had disappeared, but a small patch remained upon each upper arm. The hardness of the buttocks and backs of the thighs—*i.e.*, of the parts first affected—was as distinct as ever, but had somewhat diminished in extent, and the hide-bound condition in the popliteal spaces was less marked. It was a noteworthy fact that as the induration

cleared up it did not merely shrink at its borders, but isolated patches were left which had become detached from the main area. Moreover, no pitting could be elicited in the regions in which the affection was clearing up. The note of November 26th says that by that date further improvement was evident. A very small patch of induration was noticed in the left parotid region, which had probably been previously overlooked. On November 29th the rectal temperature was 99° , and the induration had still further diminished in extent. On December 13th there were still isolated patches upon the upper arms and extensive induration over the buttocks. On this date the inunction of mercurial ointment was stopped, and that of cod-liver was ordered to be resumed. On January 31st, 1895, there was only a small patch of induration upon the outer surface of each thigh and the child could extend its legs well. The arms and back were entirely free. By March 14th the induration had completely disappeared; there was a slight cough, but no abnormal signs were detected in the chest. The infant was good tempered, well nourished, and slept and took the breast well. On April 18th the child weighed $15\frac{3}{4}$ pounds. The temperature in the rectum was $99\cdot4^{\circ}$.

From the typical cases of sclerema neonatorum, upon which the descriptions contained in the text-books are mainly based, the above case presents certain well-marked differences, which, after all, are differences of degree rather than of kind, and which may be briefly summed up as follows:—1. The child, instead of being weakly at birth, was, with the exception of the local condition, in excellent health; nor had he suffered at any period of his brief existence from any pulmonary or intestinal disorder. 2. The temperature as taken in the rectum was at no time exceptionally low, whereas in severe cases the depression of temperature is one of the most conspicuous phenomena of the disease. The rectal temperature of $98\cdot2^{\circ}$ in the earlier stages probably indicated some depression, for it is stated that in young infants the temperature is as a rule over 99° , and on later dates the temperature was always somewhat higher in this case. 3. The induration after spreading in the earliest weeks of life became arrested, and instead of succumbing to the disease, the patient made a steady and complete recovery. Now the only recognised condition with which sclerema is liable to be confused is the oedema sometimes observed in newly-born infants. There is no doubt that these two

phenomena have frequently been confused together, and such confusion permeated the earlier literature of the subject until Parrot clearly differentiated between them, pointing out that Andry and other French authors had applied Underwood's name of sclerema to a quite different condition from that which he intended it to designate. Those who are interested in this question will find the differences between sclerema and œdema neonatorum clearly set out in Henoch's work on the diseases of children, and in a paper by Dr. Ballantyne.* In their general condition infants which are the subjects of sclerema and of œdema are apt to resemble each other somewhat closely, but the integuments of œdematous infants usually pit on pressure, although when there is great tension of fluid this character may be to a great extent wanting. Again, whereas sclerema tends to commence upon the dorsal aspect of the body and legs, and thence to spread to the remainder of the surface, œdema is apt to appear in the hands and feet and early involves the abdominal walls and scrotum or labia. I do not think that the case which I have described was one of œdema, for the following reasons:—1. There was no evidence of syphilitic taint in the child, and the history of a miscarriage preceding the pregnancy hardly suffices as evidence of this disease; nor was there any evidence of erysipelatous inflammation, of visceral lesions, nor, indeed, of any recognised cause of œdema. 2. The distribution of the hardness and the manner in which it cleared up, leaving isolated patches which persisted for a long time, seems to me strongly opposed to the diagnosis of œdema. 3. The absence of pitting on pressure even in parts in which the induration was disappearing, and the tension could no longer be excessive, seems incompatible with such a diagnosis. I should, however, mention that when the patient was shown at the Dermatological Society in November, 1894, some of those present expressed the opinion that the condition was rather of the nature of œdema than of sclerema. If I am in error in describing the case as one of sclerema I have erred in good company, for among the published cases of that disease I have found several recorded by eminent observers which were obviously of the same nature as that under consideration.

I may perhaps be permitted to refer briefly to some of these examples. In 'The Lancet' for 1889† Dr. Angel Money reported

* 'British Medical Journal,' vol. i, 1890, p. 403.

† 'The Lancet,' vol. i, 1889, p. 526.

the case of a female infant aged 5 weeks. At the time of birth a patch of induration was noticed on the right shoulder and another in the left parotid region. The skin was hardened all over the back of the trunk and on the buttocks and thighs, and in other parts was normal; no mention is made of the colour of the affected regions. The muscles were well developed, the spleen was palpable, but there was no other evidence of visceral disease. The rectal temperature was 99.2° . There was no evidence of syphilis. Up to this time the induration had been spreading, but afterwards steadily decreased, and six weeks later there only remained a small patch, about the size of a pea, in the left parotid region, and one of the size of a sixpenny piece in the left deltoid region. The child continued well and strong. Dr. Money was inclined to attribute the favourable result to the inunction of blue ointment. The resemblance of this case to mine is very striking, and is shown in the distribution of the affection, in the absence of pitting, in the manner of clearing up, leaving detached islets of induration, and in the absence of low body temperature or other signs of ill-health. Dr. Barlow records the case* of a feeble infant first seen nine days after birth. Over the greater part of the back, on the shoulders, and on one thigh the skin had a bluish-red colour, was raised above the surrounding level, and exhibited marked brawny induration. The surface was not hot, and no pitting was elicited on pressure. No glands were enlarged, and there were no signs of heart trouble or of atelectasis. Three days later the induration of the back had extended downwards, and there was some induration on the front of the right arm. A week later the child was brighter and better, but the induration was still spreading, and had involved the nates and backs of both thighs. Seventeen days later the induration was slowly clearing up, and the affected skin was paler. In the course of the following three months the sclerema disappeared entirely with the exception of one or two minute flattish indurations on the middle of the back. The treatment adopted was inunction of the affected parts with camphorated oil, and small doses of cod-liver oil by the mouth. Here the patient was seen at a considerably younger age, and the redness, which in my case had to a great extent disappeared by the time that the child came under observation, was a conspicuous phenomenon. Another example, in which a

* 'Transactions of the Clinical Society,' vol. xvi, p. 262.

vividly red area of induration was confined to the buttocks and backs of the thighs of an infant a month old, was recorded by Dr. A. G. Barrs.* Grey powder was administered, and the infant recovered. A somewhat similar case will be found recorded by Dr. A. R. Robinson.† Evidently the case which I have described is one of a group of cases tending to recovery, all more or less closely resembling each other, and which, whilst they differ in certain respects from the typical examples of sclerema, exhibit still more conspicuous differences from the œdema of new-born infants as it ordinarily presents itself. Possibly when future research shall have thrown more light upon these obscure conditions, it may turn out that such cases constitute a third distinct group differing in their essential nature from either of the conditions under discussion. Of the morbid anatomy of the condition present in such examples as these nothing is of course known, but we are not without knowledge of the changes present in fatal cases of sclerema. Some writers have described a deposit of stearin-like material in the subcutaneous tissue, suggesting that the fat there present has become solidified, and accordingly the name of fat sclerema has been employed. The theory of fat solidification received support from the observations of Langer,‡ who states that in young infants nearly all the fat in the body is concentrated into the panniculus adiposus, which is relatively nearly five times as thick as in adults. Langer found that when extracted from the adipose tissue the fat of infants did not completely melt below a temperature of nearly 40° C., so that the ordinary body temperature is not sufficient to keep it completely liquid. This much higher melting point of the fat of infants than of that of adults was found to be due to its containing a much larger proportion of stearin and palmatin, whilst the amount of olein was correspondingly less. There are, however, records of careful *post-mortem* observations of the skin and subcutaneous tissue of infants dying from sclerema which are not consistent with the above view, and which are equally difficult to reconcile with the clinical features and rapid recovery of such cases as have been quoted above. Thus Parrot§ found that the

* 'British Medical Journal,' vol. i, 1889, p. 994.

† 'Archives of Dermatology,' 1882, vol. viii, p. 337.

‡ 'Wiener Medicinische Presse,' 1881, pp. 1375 and 1412.

§ 'Clinique des Nouveau-nés: l'Athrepsie,' 1877, p. 116.

most conspicuous changes were atrophy of the skin and of the subcutaneous fat, and that in consequence of this latter change the fibrous trabeculae of the subcutaneous tissues appeared abnormally numerous and distinct. Ballantyne describes very similar appearances to those observed by Parrot, but he holds that the fibrous tissue increase is real and not merely apparent, and regards the atrophy of the fat cells as secondary to this sclerosis. Langer regarded the fall of the body temperature as the primary phenomenon and the solidification of the fat as the result of the cooling, but he suggests that in cases in which there is no conspicuous fall of temperature a similar result may be brought about by undue surface exposure to cold air or water. He quotes the observations of Sommer, who found that the natural temperature of new-born infants is somewhat higher than that of adults—viz., between 99.8° and 100° F. In cases in which there is a rise instead of the usual fall of temperature Langer ascribes the solidification of the fat to the oxidation and resorption of olein and a resulting elevation of the melting point. There is, however, another way in which we may look upon the relation of the lowered temperature to the sclerema. A conspicuous fall of temperature and early death are the phenomena observed in animals which have been varnished, and it seems at least possible that when the sclerema is universal or very extensive this affection interferes with the cutaneous functions, or more probably with the vaso-motor mechanism, in much the same way as varnishing does. It is true that Senator* found, in the course of some experiments undertaken with a view to the reduction of fever by this means, that very extensive varnishing of the skin in human beings did not produce the effects which are observed when animals are similarly treated; but he attributes this to the fact that small animals have a greater surface in proportion to their bulk, and himself points out that children more closely resemble animals in this respect, and are much more sensitive to surface cooling, and that therefore they would be more likely than adults to exhibit a conspicuous fall of temperature under such treatment. On such a hypothesis it is easy to explain the absence of conspicuous lowering of temperature in the cases in which the sclerema is limited to the dorsal aspect of the body. Since there is a tendency for the sclerema when once arrested to recede

* 'Virchow's Archiv,' vol. lxx, p. 182.

somewhat rapidly it seems possible that, provided adequate nourishment could be administered, and if the warmth of the body were sufficiently maintained by placing the infant in an incubator, the time of most danger might be tided over, and recovery might result in some at least of the graver cases of *sclerema neonatorum*. All writers agree that external warmth is clearly indicated in such cases, and it sometimes has appeared to have very beneficial results.

In conclusion, a few words must be said about treatment by drugs. I have already mentioned that Dr. Angel Money attributed much efficacy to the inunction of mercurial ointment in his case, for when this treatment was commenced the induration, which had up to then been extending, began to recede. When, however, we turn to Dr. Barlow's case we find that a similar arrest and recovery were observed although no mercurial treatment was employed; and in my case the improvement had certainly commenced during the week which preceded the inunction of mercurial ointment. After the mercurial inunction was stopped the improvement continued uninterruptedly, but it is my impression that it was not quite so rapid as during the four weeks of mercurial treatment.

Dr. KESER said they did not often see cases of this kind followed by recovery. That question of recovery had at one time possessed a very important bearing in respect of himself, he having, as an infant, gone through a very severe attack of it, and his brother having died from the disease. His recovery was probably due to his having been kept very warm and carefully fed, no mercury being given. The author's case was peculiar in two respects, occurring as it did in an otherwise healthy child, and, secondly, in the temperature having been normal, which was also very exceptional. He wished to call attention to the incomplete or abortive cases, of which he had met with several examples during the last few years. The extent of the induration varied very much in different cases, and it did not always begin in the same places. Therefore they must occasionally expect to find abortive or incomplete cases. The first case was that of a child born six weeks before term. It was a miserable infant, very thin, who soon suffered from digestive troubles, and had an attack of bronchitis within a fortnight, during which the temperature went up to 99° F., at other times the temperature always being below normal. At 7 weeks of age the penis was noticed to have become quite hard, and in the course of two days the hardness had spread to the *mons veneris* and the lower part of the abdomen. The character of the hardness was exactly that described by the author, being a conspicuous hardness, very different from that of *œdema* with sharply defined edges, very slight pitting on pressure, &c. The child got well after a few days, and then a fortnight later had a relapse, the induration commencing on this occasion on the left side of the scrotum. Again, it

disappeared, but the child ultimately succumbed to broncho-pneumonia, there being no sign of sclerema at the time of death. The second case was that of a child born at term, in a bad state of general nutrition. When one month old induration was noticed in the right gluteal region, spreading to the thigh and lumbar region. The induration was quite characteristic, and the temperature was subnormal. This child recovered by being kept warm. The third child had a hard patch on the left cheek, free from any signs of inflammation. The affected skin was of normal colour but felt like a piece of leather let into the skin. Another patch appeared over the left ear and another behind it. All the patches disappeared in a fortnight without treatment. In Barrs' case the skin was very red and the disease corresponded with the rubbing of the napkins. Dr. Keser remarked that the disease was very scantily dealt with in English text-books. In Fagge's otherwise excellent work, for instance, it only occupied six lines, and that author described it under the name of Thirial's disease, though if any names were to be tacked to the disease it ought rather to be that of Underwood and Denman, who had described it very exactly at the end of the last century. He referred to the first case published by Uzembosius in 1718, in which the disease was attributed to a maternal impression.

Dr. COLCOTT FOX observed that the disease was certainly a rare one, and apparently less frequent in this country than it used to be, and also less common in this country than abroad. He himself had been in the way of seeing such cases, if they had occurred in London, for many years past, and he had come across very few. With such a limited experience, therefore, he spoke with diffidence. In typical cases of sclerema neonatorum and of oedema neonatorum he thought it might be possible to distinguish clearly between the two conditions; but in a considerable proportion of the cases the characters were less clear, and a differential diagnosis was difficult or impossible. He recalled the first case of the kind he had seen, in which the child had a number of bosses on the back and over the deltoids. They were simple lumps, and at first he was greatly puzzled and thought they were gummata, but later he came to the conclusion, in the light of a subsequent case, that it was a case either of sclerema or oedema neonatorum. He insisted upon the fact that these cases might present themselves, not with the characteristic diffuse board-like induration of the skin, but in a state of involution, with indurations in the shape of isolated bosses. With regard to the diagnosis of this special case, he mentioned that when he saw it in November last he had suggested its being one of oedema neonatorum, but after listening to the history of the case he was prepared to admit that after all the author might be right. His reason for classing the case as one of oedema, rather than sclerema, was that in the latter the changes usually began in the lower limbs, spreading upwards, and not infrequently involving the face, whilst the deeper structures might also be involved. There was also usually a certain amount of purplish coloration, whereas in oedema neonatorum the dependent parts of the body were mainly affected. Much difficulty in the diagnosis arose from the fact that the oedema neonatorum might pit on pressure, and that sclerema frequently involved the back. In the author's case the changes affected the back, the back of the thighs and arms, and that inclined him to the opinion that it was oedema neonatorum.

Dr. COLMAN observed that most of the published cases were extremely indefinite, and cases of oedema and sclerema were confused, in fact there

seemed to be two classes of sclerema ; one in which there was a deposit of slowly formed fibrous tissue in the skin, which would be very unlikely to undergo retrogressive change, all of which were probably fatal, and those in which one or more of the structures in the subcutaneous tissue underwent changes which might conceivably be recovered from. He pointed out that the subcutaneous fat of newly-born infants differed considerably from the fully-developed child, and in the foetus this fat was very firm and hard. In the cases of *oedema neonatorum*, moreover, the patches did not pit with anything like the readiness of oedematous tissues in older children and adults. Probably the confusion between these two classes of cases was the reason why most cases of *sclerema neonatorum* on record were put down to syphilis without any adequate evidence in support of such a view. In the more recent cases almost the only evidence of syphilis was that they improved under mercury, but many other diseases, tuberculous ascites for instance, did the same, and it seemed hasty to infer syphilis on that basis alone. In many of the cases there seemed to be no question that, as far as could be ascertained, there was absence of syphilitic taint. In cases of *oedema*, on the other hand, one usually found traces of syphilis, if the child lived. He concluded by referring to two cases of *oedema neonatorum* in which, *post-mortem*, he had been enabled to demonstrate the fact that within a fortnight of birth there were syphilitic lesions in the viscera.

Dr. GARROD, in reply, said that in the case which he had described, the temperature was probably depressed, because the normal temperature of a child at that age was usually above 98·2° F., which reading was moreover obtained at a time when the symptoms had already begun to subside. He pointed out that in this case there was a nodule of induration in the left carotid region, almost on the face, and the same thing was present in the case recorded by Dr. Money. The induration began on the buttocks and spread to the other parts of the body, but he did not think that in this case the mercury did more than expedite recovery, for the symptoms had already begun to subside before that treatment was instituted, and Dr. Barlow's case had recovered without any mercurial treatment. Dr. Money, who had been the chief advocate of the mercurial treatment, expressly stated that he did not regard improvement under the treatment as evidence of its dependence on syphilis.

May 13th, 1895.

THE DIAGNOSIS OF RETRO-PERITONEAL SARCOMA— WITH CASES.

By C. B. LOCKWOOD, F.R.C.S.

ANYONE who has performed many laparotomies must have met with retro-peritoneal tumours. I have twice found this embarrassing condition. In neither case was it diagnosed before the operation. Had a diagnosis been made there is no doubt but that a useless operation would have been avoided, and, in one instance, I should have spared a fatality which was a matter of much regret. I am, however, convinced that a diagnosis ought to be possible in this class of cases, and it is with special reference to this point that I propose to narrate my own experience. At the same time others may be warned against a pitfall into which I fell, and escape a similar disaster.

The tumour to which I am about to refer, namely, retro-peritoneal sarcoma, is worthy of more attention than it has received. It is not mentioned in the various indexes or in the larger works upon abdominal and general surgery. So far as can be learnt, no specimen of it has been shown at the Obstetrical or Pathological Societies. Hitherto the Medical Society of London has had no opportunity of discussing its peculiarities.

By the expression retro-peritoneal sarcoma is implied a sarcomatous tumour growing behind the peritoneum and into its folds, and not connected with any of the great retro-peritoneal organs, and unaccompanied with ascites. This definition excludes, therefore, sarcomas which grow from the kidney. They are retro-peritoneal, it is true, but, owing to their origin, they are always called sarcomas of the kidney. Similarly, one which grew from the adrenal would be retro-peritoneal, but would be called a sarcoma of the adrenal body, and so forth. In the class of cases of which I am speaking such precision cannot be attained, because in both of the cases to which I am about to allude, and in others of the same kind, the origin of the growth was unknown.

The narration of the first case will give an idea of some of the clinical and anatomical features of these retro-peritoneal growths.

CASE 1.—The patient was a robust, unmarried woman, aged 47 years. She said she had been short of breath for nearly a year, and for three months had had a feeling of weight in the hypogastrium. Her abdomen was always big, but of late it seemed unusually distended. Her left leg has recently become swollen. Beyond this there was nothing in her history to point to the nature of her disease.

Our examination showed that the abdomen was tightly distended, so that the skin was shiny, and the umbilicus almost obliterated. A hard tumour could be felt filling nearly the whole abdomen, but projecting most beneath the left linea semilunaris.

It seemed to rise up out of the pelvis and extend more into the left flank, and upwards into the left hypochondrium, than into the right side. But the rounded edge of the growth could be felt reaching beyond the umbilicus almost into the right hypochondrium, and almost into the right flank. It is said that the tumour was dull everywhere, and that the area of dulness did not vary, but I doubt whether this observation was quite correct, for reasons which will be given presently. There was no ascites, and no thrill could be felt, nor fluctuation, and nothing was heard with the stethoscope. My colleague, Dr. Remfry, said the tumour had no connection with the uterus, and although the signs were anomalous thought that it might be a tumour of the left ovary. For myself I thought the tumour solid, and probably connected with the ovary.

I opened the abdomen by the usual incision, and came upon a tumour which looked and felt like a thick walled cyst. The abdomen was so tight that the hand could not be properly introduced, but so far as could be felt a thick walled cyst with a good deal of solid growth seemed to be in question. A trocar was thrust into the tumour but nothing came out. I then incised what seemed to be the wall of a cyst and scooped out a quantity of semi-solid contents. Soon some large vessels were met with, but easily secured. By this time there was room to explore the abdomen properly, and then the left colon was found upon the surface of the tumour, lying almost beneath the left linea semilunaris. It is probable that its attachments were a good deal injured. The suspicions which this aroused were confirmed by the discovery that the mesentery and transverse mesocolon were incorporated with the upper part of the tumour, and that the pelvic organs were free. Moreover, at the sides of the abdomen the hand could not be passed behind any part of the growth. These points were made out with much difficulty, and the growth was clearly beyond the possibility of removal. The abdomen was therefore closed in such a way as to shut off the wound in the growth from the peritoneal cavity. A drain was inserted and an antiseptic dressing applied. For the first two days the unfortunate woman seemed to be progressing well, but her temperature rose, sickness and other signs of obstruction set in, and she died upon the fourth day.

An examination was made, which showed that the retro-peritoneal tissue was occupied by an enormous new growth. This reached from the brim of the pelvis to the diaphragm, and had thrust its way into the root of the mesentery, into the transverse mesocolon and towards the hilum of the spleen. It enveloped but did not infiltrate the pancreas, kidneys, and supra renal bodies. The vena cava inferior was incorporated with its posterior surface, and the mesenteric vessels ran through its substance. The mesenteric lymphatic glands were not seen, but might have been

involved in the tumour. Towards the sides of the abdomen it had reached beneath the right and left colons.

From this examination it was clear that the tumour was beyond removal. The organ or tissue whence it grew was, however, left obscure, but I thought it probably originated in the retro-peritoneal tissue.

Both Dr. Galloway, who made the *post-mortem* examination, and myself were of opinion that this growth was a myxo-sarcoma. I regret that the report of the histological examination has been mislaid, but I have a distinct remembrance that no epithelial structures were found in the sections.

The physical characters of the growth were those of a sarcoma. It was yellowish-grey with a red mottling in places. Its consistence varied from soft solid to a gelatinous consistence. It was not very vascular, except where it had involved the great vessels. It did not possess any capsule, but in places its lobes had pushed the tissues before them without having infiltrated. No enlarged lymphatic glands could be discovered.

There was no peritonitis or suppuration, but the broken down interior of the tumour had probably become infected.

Before commenting upon this case, I propose to narrate another of the same kind which was met with last year.

CASE 2.—The patient was 53 years old and had noticed a fulness and weight in her abdomen for two years. She has been married for 28 years but nothing in her history pointed to the nature of her abdominal swelling. This was considerable, for her abdomen was 48 inches in circumference at the umbilicus. The swelling was caused by a tumour which occupied chiefly the right side of the abdomen. It was a firm and rounded mass, dull on percussion, and projecting most beneath the right linea semilunaris. Both flanks and the right side of the abdomen were resonant, and there was no ascites. There was a zone of resonance betwixt the tumour and the liver, its upper margin could be felt about midway betwixt the umbilicus and right costal cartilages. Below it seemed to dip into the pelvis. My colleague, Dr. Champneys, found no obvious connection between the tumour and any pelvic organ. He was inclined to think that it belonged to the upper part of the abdomen. He agreed that an exploratory operation was desirable. On the whole, I myself thought an unusual ovarian tumour was in question. I did not understand the significance of an observation which was made a fortnight after the patient's admission. The note said on September 17th that "the lump in the abdomen seems most defined both towards the mid line and down into the flank," and four days later the note says, "there is decided resonance now in front of the lump, extending 6 inches to the right of the middle line and 8 inches below sternum." When I opened the abdomen a few days afterwards such a condition was found that it is only to be wondered that the area of resonance was not more variable and irregular. There was a large solid growth behind the peritoneum, growing into the root of the mesentery, and pushing the small intestines in front of it. In this process the mesentery had been partially obliterated, so that in places the intestines were distributed over the surface of the tumour, lying in grooves in its substance. The growth had lifted up the peritoneum of the iliac fossa, together with the cæcum.

The tumour was probably lobulated in places ; it was the colour of fat but rather firmer to the touch. As the patient's condition was precarious nothing more was ascertained. The wound, which was extensive, was closed with buried silk sutures in the linea alba, and fishing gut sutures in the skin. The patient made a fair recovery, but her convalescence was retarded by an obstruction in the veins of the right leg. The iliac veins had probably been pressed upon by the tumour. We have lately endeavoured to communicate with this patient but without success.

There can be no doubt whatever that had these cases been diagnosed, an operation would not have been attempted. In the first the exploration forfeited the patient's life, and in the second it caused a grave and serious illness. When such a tumour as this cannot be removed at the operation the abdomen has to be closed in such a state of distension that the action of the heart and the respiration may be gravely embarrassed. In addition, every unnecessary and unsuccessful operation brings discredit upon surgery. Clearly it is of the greatest importance that we should learn to diagnose these retro-peritoneal sarcomas.

In the early stages it is probable that this would not be a difficult task, especially if the abdomen was examined with the patient under the influence of an anæsthetic. The tumour would, I assume, be found to occupy some part of the centre of the abdomen, near the root of the mesentery, and possess no obvious connection with the kidneys or pelvic organs.

But apparently the onset of retro-peritoneal sarcoma is so insidious that the patient is not seen during the early stages. In the cases just described the only symptoms at the beginning were breathlessness and a feeling of weight in the hypogastrium. The abdominal distension seems to have occurred so gradually that it attracted little notice. Therefore we must reckon upon having to deal with these retro-peritoneal growths at a time when they have attained formidable dimensions, and when the abdomen has become tightly distended.

The difficulty of diagnosing abdominal swellings is notorious, but a solid growth which could not be attributed to any of the great organs ought, at least, to arouse suspicion. In both of the cases which I have narrated the uterus was at once excluded. The liver, too, was separated from the growth in each of them by a zone of resonance. The absence of urinary symptoms seemed to exclude the kidneys, although in one case the dulness extended into the loin. Nor could any reason be discovered for attributing

the tumour to the spleen, or pancreas, of supra-renal bodies. Its connection with the ovaries was, however, in each case more difficult to decide upon, and in each was strongly suspected. But not only did the tumour project into the true pelvis less than an ovarian tumour generally does, but its other characters were anomalous.

Had I only suspected a retro-peritoneal growth in the first case, the incision would have been prolonged and the nature of the growth revealed without putting the patient's life to an unwarrantable risk.

Now, I cannot help thinking that we shall find the clue to the diagnosis of these retro-peritoneal growths in a correct appreciation of their anatomy. Let me recall what was found in the first case. In it the growth had spread behind the peritoneum and lifted up the intestines, so that the left colon ran down its front surface behind the left linea semilunaris. At the operation this part of the bowel was empty, but there must have been times when it was full of gas and capable of discovery by percussion. This information might not be obtained at one examination, but in a dubious case, such as this, no one would hesitate to defer an operation until several examinations had been made.

In the second case this peculiar feature in the resonance of the tumour was actually observed, although its significance was not understood. The clinical notes said that after admission the tumour was dull on percussion; a fortnight later they said that there was a decided resonance in front of the lump, where none had been before.

At the operation the appearance of this area of resonance in the front of the tumour was fully explained. The retro-peritoneal growth had extended into the mesentery, so that the small intestines were distributed over the surface of the tumour. Without any doubt the variation in the areas of resonance was caused by one of these becoming distended.

Doubtless retro-peritoneal sarcomas are rare but others will be met with. It will be interesting to learn whether those who find them will be able to confirm my supposition that they will possess irregular areas of dulness and resonance, and, moreover, that their areas of resonance will vary from time to time.

The PRESIDENT observed that the diagnosis of the cases interested the physician as much as the surgeon, for if the physician could spare his

patient an operation, he would be glad to do so, although patients would doubtless be willing to submit to operation, provided no other means of affording relief were available. He commented on the fact that the tumour at one time appeared perfectly solid, while at another the conditions were quite different, so that several examinations became imperative. He did not doubt that the author regretted having operated ; and, had he known what he subsequently did, he would probably have declined to do so.

Sir HUGH BEEVOR said he had turned up the notes of a patient of King's Hospital with retro-peritoneal tumour ; a man aged 32, who had first noticed a swelling of the abdomen seven weeks before. Four weeks previously, he had had the left testicle removed, and had been emaciating for seven months. The tumour occupied the upper part of the abdominal region, and reached 2 inches below the umbilicus, the swelling being more prominent to the left. It gave a sensation like hydatid thrill just above the umbilicus, and was resonant over a small area in the epigastrium only on one occasion. The liver dulness reached to the fifth rib, and the heart apex was at the third interspace on the left side. The urine contained a trace of albumen. The arteries were markedly thickened. He died suddenly, presumably from perforation. There was a movable nodule in the left iliac region. *Post-mortem*, this was found to be in the omentum. There was a mass, the size of the cranium, attached posteriorly to the retro-peritoneal fascia over a large area, and the transverse colon lay in front of the mass. The growth was very friable. The special clinical interest of the case lay in the fact that it was impossible to obtain evidence that the transverse colon passed across the main body of the tumour, though, as the tumour filled that part of the abdomen, these signs were repeatedly looked for. Some of these cases required to be examined again and again, and even then no evidence might be forthcoming as to the position of the viscera on percussion. Doubtless, gas passed sometimes along the gut, but this was either seldom and temporary, or gave no physical signs.

Dr. H. SNOW failed to see how the diagnosis of these cases could be founded on the position of the colon. The lymph-glands situated along the vertebral column were often the seat of primary malignant growth, and pushed forward the gut ; or the intestines might be adherent to a renal or pancreatic tumour. Sometimes they might be distended with gas, and at others they might be empty. Consequently, he did not see how this could be taken as evidence of a sarcoma behind the peritoneum. He asked whether there was any history of a cause for the growth, such as injury, &c. He thought it possible, from what the author had said, that the lesions might have sprung from some congenital rudiments of the Wolffian bodies, which rather often originated neoplasms, incorrectly recorded as sarcomata in children. There was one point which he had found useful in the diagnosis of intra-peritoneal cancer, though he would not venture to apply it extra-peritoneal :—in presence of ascitic fluid, when one pushed with the finger downwards, one got a curious emphysematous sensation, which he had never met with, except in connection with malignant growths.

Mr. LOCKWOOD, in reply, said these cases could not be very rare, seeing that he himself had met with two in four years. It was a matter of astonishment to him that he had been unable to find more of them recorded. He hoped in future that they would be published, because a surgeon was apt to get into a dreadful dilemma. In answer to Dr. SNOW,

he said he was really speaking of cases of retro-peritoneal growth at an advanced stage. In his own case, the variation in resonance had been actually observed. It was merely a suggestion he had thrown out; his own experience being limited to these two cases. His intention was only to show that there was a cause for their devoting more attention to these growths than had hitherto been accorded to them. Nothing was observed *post-mortem* to show where the growth had originated.

A SERIES OF CASES OF OPERATIONS UPON THE STOMACH.

By HERBERT W. ALLINGHAM, F.R.C.S. Eng.

IN going through my case-books I find that I have on 13 occasions operated upon the stomach. Although I regret there is nothing new to report, yet the experience I have gained from these operations tempts me to narrate them, and to point out some of the lessons that I have learnt. I have performed gastrostomy seven times, gastro-enterostomy four times, Loreta's operation once, and pyloroplasty once. I will now briefly relate the cases as they came under my charge.

CASE 1. *Gastrostomy* (1).—A man 52 years of age had had for a year great difficulty in swallowing, and for the last month had been unable to pass into the stomach even liquids. He had lost much flesh, and appeared to be in the last stages of starvation. On examination, an œsophageal bougie stopped on a level with the central part of the sternum. There had been constant vomiting of blood and mucus. On August, 14th, 1886, gastrostomy was performed. An incision 3 inches long was made parallel to and half an inch from the margin of the ribs. The abdominal cavity was opened; the stomach was found and was secured by many interrupted stitches passing through the muscular and serous coats, and was thus fixed to the skin wound. The patient was fed per rectum, and progressed favourably till August 21st; as he was weak and failing in general strength the stomach was opened, and food was given every four hours until the 23rd, when he died. A *post-mortem* examination showed that there were no signs of peritonitis; the stomach was firmly glued to the abdominal wall. The cause of death was asthenia.

CASE 2. *Loreta's operation*.—A patient 54 years of age was admitted into the Great Northern Central Hospital with pyloric obstruction. There was no tumour to be felt. The patient was much emaciated, and constantly vomited soon after taking food. After a consultation with my colleague, Dr. Burnet, it was decided to explore the pylorus, and if the obstruction was not malignant to perform Loreta's operation. On May 13th, 1888, the abdomen was opened by a vertical incision in the median line just above the umbilicus. The pylorus was found to be freely movable but rather thickened, and appeared to be in no way

affected by malignant disease. The liver, as far as it could be examined, was normal. The thickened condition of the pylorus showed a fibrous state. The stomach was opened on its anterior surface, the incision being large enough to admit three fingers. When the finger was inserted into the stomach the pyloric opening was found to be greatly contracted. Only with great difficulty could one finger be inserted, but by gradual dilation it was possible, after a time, to pass two fingers through the contracted portion. No ulceration was to be felt. The stomach wound was sewn up with Lembert's sutures. The patient was rather collapsed after the operation, and died the next day. On *post-mortem* examination the body was found to be much emaciated; the stomach walls were well glued together, there was no leakage into the peritoneum, and there was no evidence of peritonitis. At the back of the liver there was a small cancerous nodule. The pylorus was freely dilated, and showed on section a scirrhus condition. There was no ulceration of the mucous membrane.

CASE 3. *Gastrostomy* (2).—A man 48 years of age was admitted into the Great Northern Central Hospital. For four months he had had difficulty in swallowing, and had experienced pain in the epigastrium and the lower sternal regions. For two months he had been unable to eat solid food, and liquids returned at once, even when slowly taken. He had lost 2 stone in weight in three months, and while in the hospital a week lost 1 stone more, so that at the time of the operation he weighed only 7 stone. On July 9th, 1890, gastrostomy was performed. A vertical incision was made in the left linea semilunaris, the abdominal cavity was opened, and the parietal peritoneum was stitched to the skin. The anterior part of the stomach was sought for near the cardiac end, and was placed in position by the method of "quilled suture" advocated by Mr. Greig Smith. The patient did well, and was fed for the first week with nutrient enemata. The stomach was then opened by an incision large enough to admit a No. 8 catheter; through this the patient was fed, and he rapidly gained in weight. After this, he went to the cancer wards of the Middlesex Hospital, where he lived for 11 months. The authorities of that hospital kindly informed me that his death was caused by the cancerous growth extending into the lungs.

CASE 4. *Gastrostomy* (3).—A woman 50 years of age was admitted into the Great Northern Central Hospital. For six months she had had difficulty in swallowing solids, and for two months had been restricted to fluid nourishment. She was wasting rapidly. On the right side of the neck a swelling was noticed. No bougie could be passed beyond the level of the upper border of the sternum, and in this situation there was a cancerous mass. On December 30th, 1891, gastrostomy was performed. A vertical incision was made in the left linea semilunaris, the parietal peritoneum was stitched to the skin, and the stomach was kept up to the abdomen by Greig Smith's "quilled suture" method. The patient was fed by nutrient enemata. On January 3rd, 1892, the stomach was opened by a small incision, and into this was passed a No. 8 catheter, by which food was given. On January 6th all the stitches were removed; on the 17th, at the request of her friends, she left the hospital. She lived four months longer.

CASE 5. *Gastro-enterostomy* (1).—A woman 47 years of age was admitted into the Great Northern Central Hospital on February 24th,

1892. From October, 1891, she had had occasional attacks of sickness and pain in the epigastric region, which usually occurred in the evening. A burning sensation in the epigastrium preceded the sickness, the vomited matter consisting of the meals taken during the day. A few months before admission a swelling was noticed in the epigastric region. The patient had lost a good deal of flesh. The abdomen was not distended. About the epigastric region could be felt a hard nodular growth, about the size of a Tangerine orange, which was quite movable, but was painful on examination. The bowels were obstinately confined. On March 2nd the abdomen was opened above the umbilicus in the middle line by an incision 4 inches long. The stomach was explored, and a hard growth was found involving the pyloric end. The anterior wall of the stomach was then drawn into the wound, and an incision $1\frac{1}{2}$ inches long was made in the stomach; a coil of jejunum was similarly drawn out and incised to the same extent. Two Senn's bone-plates were inserted, one into the stomach and the other into the jejunum; the bone-plates were then apposed, thus bringing together the aperture in the stomach and in the bowel. The plates were next tied together, and the stomach and bowel were united by 12 superficial Lembert's sutures. The abdomen was sponged out, and the abdominal wound was united by silkworm-gut sutures. After the operation the patient vomited some blood-stained fluid, and continued to vomit intermittently for 24 hours. For four days she was fed per rectum, and after that food was given by the mouth. On March 14th a purge was given, which acted well. The patient progressed favourably, with occasional vomiting after meals, especially when the food was of a very bulky nature. On May 30th she left the hospital, having gained in weight, and went to the north of England. Four months later she died from some lung trouble, probably of a malignant nature; her friends declined to allow a *post-mortem* examination to be made.

CASE 6. *Gastrostomy* (4).—In June, 1892, a man 67 years of age came to the Great Northern Central Hospital. For 12 months he had had difficulty in swallowing; for the last five or six months his diet had been confined to fluids, and even these sometimes returned. The obstruction was on a level with the upper part of the sternum. For two months he had lost flesh rapidly, his normal weight of 11 stone being reduced to 8 stone at the time of admission. No bougie could be inserted more than 12 inches from the teeth. On June 22nd a vertical incision, $2\frac{1}{2}$ inches long, was made along the left linea semilunaris, the abdomen was opened, and the parietal peritoneum was stitched to the skin. The anterior wall of the stomach was pulled out into the wound, and was then drawn through the hole in a Senn's bone-plate, which was placed transversely to the wound in the abdominal wall. A piece of the stomach was then drawn through the hole in the bone-plate and was held in position by two harelip pins passed through the muscular and serous coats. This operation (Bowreman Jessett's) took 10 minutes to perform. The patient was fed by enemata till June 27th, when the stomach was opened by a tenotomy knife in the interval between the harelip pins. A No. 8 catheter was introduced into the aperture and the patient was fed through it. On June 30th the pins and bone-plate were removed. On July 19th the patient left the hospital, being much improved in health and having gained considerably in weight. He was heard of eight months after the operation, but no information was received as to his further length of life.

CASE 7. *Gastrostomy* (5).—A man 51 years of age began to experience trouble in swallowing at Christmas, 1891, and this difficulty so increased that five weeks before his admission to the Great Northern Central Hospital in August, 1892, he was unable to swallow any food. He was greatly emaciated, and a bougie would not go beyond 10 inches from the teeth. On August 31st a vertical incision $2\frac{1}{2}$ inches long was made in the left linea semilunaris, the abdomen was opened, and the parietal peritoneum was stitched to the skin. The transverse colon was discovered, and thence, by tracing up the great omentum, the stomach was easily found. Part of the anterior wall near the cardiac end was then drawn through the hole in a Senn's bone-plate (Bowreman Jessett's operation). The patient was fed by enemata till September 5th, when the stomach was opened in the interval between the harelip pins by a tenotomy knife; through the opening in the stomach thus made food was given every four hours. On September 7th the pins were removed. The patient, who was greatly improved, left the hospital on September 20th. There was no information given as to the time he lived after the operation.

CASE 8. *Œsophagostomy followed by gastrostomy* (6).—A woman 53 years of age was admitted into the Great Northern Central Hospital at the end of September, 1892. For many months she had had much difficulty in swallowing solid food, and of late had had great trouble in swallowing fluids. At times she vomited blood and mucus; she had lost flesh and was much emaciated. After examination with bougie and finger, she was believed to have a malignant stricture on a level with the cricoid cartilage. This was thought to be a fit condition for the performance of œsophagostomy. Therefore, on September 29th, an incision was made down upon the left side of the neck; the œsophagus was found, brought to the surface, stitched to the skin wound, and then opened. The next day, as the patient was feeble, a catheter was passed into the œsophageal opening, and through this catheter food was administered. But to my amazement, as fast as the milk was poured into the œsophagus it ran out again; moreover, when the catheter was passed down towards the cardiac end, by no persuasion could it be made to find its way into the stomach. This being the case, gastrostomy was performed by Bowreman Jessett's method. Then the stitches connecting the œsophagus with the skin were cut loose, so that the œsophagus fell back into its normal position. On October 1st the stomach was opened and feeding was at once commenced. The patient made an uninterrupted recovery, the œsophageal opening completely closed, food was given daily by the opening in the stomach, and the patient gained rapidly in weight, leaving the hospital at the end of October; about two months later, as she failed to pass the catheter into the stomach some friends assisted her to do so, but unfortunately they passed it instead into the peritoneal cavity, into which fluid was poured; needless to say, within 24 hours she died from acute peritonitis.

CASE 9. *Pyloroplasty*.—In June, 1894, a man 31 years of age entered the Great Northern Central Hospital. Seven years before, his illness began with an attack of what was supposed to be acute dyspepsia, and since then he had been treated for that ailment. Two years before admission he had attacks of acute pain in the pit of the stomach, which occurred at no particular time of the day, but very frequently. A year

later he began to be sick, usually at night, vomiting the meals eaten during the day, but never blood. Just before admission this vomiting took place nightly, on one occasion amounting to three quarts of partially digested food. The bowels were very constipated, acting only once a week, and the motions being scanty. He had attended at another hospital, where he had had the stomach washed out frequently, and all kinds of drugs had been tried for his relief. The patient was a spare man. The stomach was much dilated, but no tumour was to be felt in the abdomen, and the other organs were quite normal. On June 20th the abdomen was opened in the middle line by an incision extending from the ensiform cartilage to the umbilicus. The pylorus was sought for and found to be thickened and contracted. There were no signs of malignant disease; thereupon it was decided to perform pyloroplasty. A longitudinal incision was made running transversely to the stricture. The pylorus, when so opened, was found to be much contracted and fibrous. The centres of the edges of the longitudinal cut were then pulled apart, so that the incision was converted into a transverse one. This incision was then sewn together by a deep suture, which united the mucous membrane on one side of the wound to that on the other side, and the muscular and serous coats were united by many of Lembert's sutures. The patient made an uninterrupted recovery. The stitches in the abdominal wound were removed on June 28th; for some days previously the patient had been fed by the mouth with milk and essence of meat, and from that date solid food was given. He continued to take by the mouth diet of various kinds without sickness or pain. He left the hospital on July 10th, having gained much in weight. He was seen again in February, 1895, when he was in perfect health, and able to eat everything without experiencing sickness or discomfort. At that time he was shown before the Medical Society of London.

CASE 10. *Gastro-enterostomy* (2).—In July, 1894, a woman 44 years of age was admitted into the Great Northern Central Hospital. For 18 months she had complained of great pain in the stomach after meals, followed some hours later by severe vomiting. This had grown much worse of late. She had rapidly lost flesh, and for the last three months had noticed a swelling about the epigastric region, which had increased in size and was very painful when handled. The patient was much emaciated, and about the epigastric region could be felt a large, hard, irregular mass. All food taken was returned, and the vomited material was sometimes blood-stained. As it appeared from the symptoms to be a case of tumour of the pylorus, it was determined to perform gastro-enterostomy if it was possible. On July 12th the abdomen was opened in the middle line by an incision extending from the ensiform cartilage to the umbilicus. On exposing the stomach there was found what appeared to be a large, hard, sarcomatous mass which involved the pylorus and a considerable portion of the stomach. There were also secondary deposits in and about the great omentum. This condition caused me considerable doubt as to whether it was possible to perform gastro-enterostomy on account of the extent of the growth and the amount of stomach involved. However, after much consideration it was decided to be justifiable to attempt the operation, in the hope that it might afford some relief. An incision was made into the anterior surface of the stomach, and a piece of jejunum about 12 inches from the duodenum was brought to the surface and similarly incised. Mayo Robson's bobbin

was inserted into the holes in the gut and stomach and fixed, and these apertures were brought together over the bobbin in the manner described by Mr. Mayo Robson. It should be noted that the jejunum was fixed up to the stomach, so that when the contents of the stomach passed along the jejunum they might proceed in the direction in which food usually goes along that gut. The abdomen was then closed in the customary manner. The patient made a rapid and uninterrupted recovery, and was soon fed by the mouth with all varieties of food. She left the hospital in about a month's time, and was shown by me before the Medical Society of London in February, 1895, together with Case 9. She was perfectly well, and had gained 3 stone in weight. It was curious to note that the growth about the epigastrium was still present, but it had not increased in size, and perhaps had even diminished.

CASE 11. *Gastrostomy* (7).—A man 48 years of age was admitted into the Great Northern Central Hospital on November 12th, 1894. For 16 months he had had some difficulty in swallowing, which had rapidly increased of late. He was scarcely able to take liquid food, and had lost much flesh. No bougie could be passed beyond the middle level of the sternum. There was no history of syphilis. On November 14th gastrostomy was performed by a vertical incision $2\frac{1}{2}$ inches long; a small knuckle of stomach was fixed through Senn's bone-plate by Bowreman Jessett's method. On November 20th the stomach was opened, a No. 8 catheter was tied in, and the patient was fed every four hours. In this case the opening in the stomach must have been made rather too large, for at times through the fistula there was a discharge of gastric juice (and some food) which greatly irritated the parts around the aperture. The patient left the hospital on December 2nd, and was still alive in May, 1895.

CASE 12. *Gastro-enterostomy* (3).—On November 28th, 1894, a woman 26 years of age was admitted into the Great Northern Central Hospital under the care of Dr. Beevor, my colleague. For two months she had complained of pain in the epigastrium, with some distension and heaviness after meals. In November she began to vomit all food, but this relieved her great pain; the vomited material was sometimes blood-stained. On admission there was observed in the umbilical and right lumbar regions a distinct, rounded tumour, which was nodular and hard. There was no jaundice or ascites. On December 10th the growth was rapidly increasing, and the patient was losing flesh and becoming worn out by the pain. Two days later (December 12th) an incision was made in the middle line from the ensiform cartilage as far as the umbilicus. The tumour was found to be irregular in shape and involving the pylorus and neighbouring parts; moreover, the right lobe of the liver was adherent to the tumour. Remembering the success of a similar case (Case 10), I determined to perform gastro-enterostomy. An incision was made into the anterior surface of the stomach, and a similar one into the jejunum; the openings were brought into contact over a Mayo Robson's bobbin, and were fixed together in the manner advocated by that surgeon. For a few days there was considerable vomiting, evidently of fluid coming from the small intestine. This was remedied by causing the patient to sit up in bed instead of lying down. On December 20th all the stitches in the abdominal wall were removed, and the abdominal wound was soundly healed. On this date the patient asked for food, and her general condition greatly improved. She continued for some time to make progress,

put on flesh, and was quite relieved of abdominal pain. However, on January 12th, 1895, she was suddenly seized with great pain in the abdomen, vomiting began, and she died from peritonitis on the 13th, 33 days after the operation. A *post-mortem* examination showed that the gastro-enterostomy wound was soundly healed, and that the communication between the stomach and jejunum was quite perfect, admitting the middle finger. The cause of death was ulceration of the growth on the anterior wall of the stomach spreading into the general peritoneal cavity, and thus setting up purulent peritonitis.*

CASE 13. *Gastro-enterostomy* (4).—On January 28th, 1895, a man 45 years of age was admitted into the Great Northern Central Hospital. Twelve months previously he had begun to have attacks of vomiting at intervals of 14 days; these did not occur after meals, but generally took place at night. The quantity vomited varied, sometimes amounting to two or three quarts, and consisted of all the food which had been taken during the day. In November, 1894, his condition became much worse, and he rapidly lost flesh. Five years before he had weighed 15 stone; on admission his weight was only 9 stone 4 lbs. The abdomen was very full, the muscles were rigid, and some peristalsis could be plainly seen through the abdominal walls. The stomach appeared to be enormously dilated, and extended as far down as the right Poupart's ligament. Considerable splashing could be elicited. On January 30th the abdomen was opened above the umbilicus; the stomach was found to be enormously dilated, and about the pyloric end, which was brought up from the neighbourhood of the right Poupart's ligament, a hard carcinomatous mass was seen and felt. The anterior surface of the stomach was opened by a small incision, and the same was done to the jejunum. Into these openings a Murphy's button was inserted, and the operation was completed as advised and carried out by Professor Murphy. Two anchor stitches were employed to fix the jejunum to the stomach. The patient was not at all collapsed, and passed a good night. The temperature was normal and there was no vomiting. On February 1st there was slight vomiting, and the patient complained of thirst. There was no distension of the abdomen or tenderness. On the 3rd there was still slight vomiting. As the stomach continued to be greatly dilated it was washed out, and three pints of very offensive fluid were removed. The patient was much collapsed after this "washing out," and died early the next morning. A *post-mortem* examination showed that there was enormous dilatation of the stomach; the Murphy's button was in no way blocked, the gastro-enterostomy wound was quited sealed, there was no leaking into the general peritoneal cavity, and there was no trace of peritonitis, and no distension of the intestines.

Remarks.—It will be seen that I lost one of the gastrostomy cases, one of the gastro-enterostomy cases, and the one in which Loreta's operation was performed. I may at once remark that if operations upon the stomach are to be of any use—that is to say, brought to a successful issue—the operation must be done fairly early—*i.e.*, before all chance of recuperative power is gone. It may be observed that my first case of gastrostomy

* The specimen was shown.

died nine days after the operation simply from asthenia. The gastro-enterostomy case died from what I can only describe as the result of an enormously over-distended and probably septic stomach—in other words, a stomach that had become so dilated that it had passed the point at which it was possible for it to recover its contractile power. Now, with regard to the best incision in the abdominal wall for exploring the stomach, if the operation is for gastrostomy, I conclude, after trying various incisions, that the vertical one about the left linea semilunaris is the best. On the other hand, when the pylorus is to be dealt with, or when a gastro-enterostomy is required, I am of opinion that a vertical incision in the middle line above the umbilicus is the most desirable. It is well known that in many of these cases, especially when the disease is an œsophageal stricture, the stomach is contracted and drawn up well under the ribs. There is sometimes difficulty in finding this organ, and, again, even when it is found, there is occasionally trouble in making sure that it is the stomach. This may be overcome as follows. First of all, upon opening the abdomen a search should be made for the transverse colon (which is immediately recognised by the longitudinal bands); and then the great omentum (the gastro-colic portion) should be traced up to the lower edge of the stomach. By these means the stomach can always be quickly found, and, moreover, there will not be the slightest doubt that it is the stomach. The next point to consider is the choice of the operation to use in gastrostomy. I have tried several methods, and have no hesitation in saying that the method advocated by Mr. Bowreman Jessett is by far the best. This is done by drawing a piece of the stomach through the hole in a Senn's bone-plate, which is placed on the skin in a transverse direction to the abdominal wound. The stomach is held in position through the bone-plate by two harelip pins. This prominent part marks the stomach, which can be opened by a tenotomy knife passed into it between the harelip pins. By this method there is not the slightest difficulty in finding the stomach, and in opening it when feeding is commenced that way. Again, very few stitches are required; in fact, none are needed to fix the stomach to the abdominal parietes. The operation is rapidly done, a quarter of an hour being ample time. Another point is of great importance. When one is opening the stomach the orifice should be only large enough to admit a No. 8 catheter. If the

orifice is made any larger there is great likelihood of the food regurgitating through the fistula and causing much irritation of the skin around the opening. Too large an opening was made in Case 11, and this, I think, was the cause of the regurgitation, which gave the patient great annoyance. While discussing the points I have noticed in gastrostomy cases, I must not forget to note the curious fact that often—*i.e.*, in five of my cases—as soon as the stomach was opened, and the patient was fed in that way, the stricture of the œsophagus was evidently relieved of spasm, and at times the patients were able to take fluids fairly comfortably by the mouth. This happy state, however, was, of course, intermittent. There are only a few remarks to make about the operation of gastro-enterostomy. I do not like Senn's plates. I do not think they keep the lips of the wound in the stomach or intestines sufficiently apart, and, therefore, later, the opening between these viscera is often not large enough. I feel certain that the opening was not large enough in Case 5, for it will be remembered that after the operation the patient often vomited bulky foods. Now, by the use of Mayo Robson's bobbin, or Murphy's button, the lips of the incisions in the stomach and intestines are kept well apart, certainly for some days, and thus there is little or no fear of the openings between these organs being too small. The loss of Case 13 (gastro-enterostomy) was in no way due to any fault of Murphy's button. In fact, the union between the stomach and the intestine around the button was quite good. Pyloroplasty, which I employed in Case 9, I regard as the best operation for the relief of non-malignant stricture of the pylorus. By it a healthy piece of stomach is let into the anterior surface of the pylorus; moreover, the stricture is divided and relieved, and no doubt in time becomes absorbed. I have doubt as to the lasting benefits of Loreta's operation, and I can readily understand that in dilating a rigid stricture it might easily be torn through, with a consequent leaking into the peritoneal cavity. Again, dilating a fibrous stricture does not always cure it, as may be instanced in many cases of urethral stricture. In the case in which I performed this operation, death, I think, resulted from shock and asthenia, the patient being very ill when the operation was attempted.

The PRESIDENT pointed out that the object of these operations was not so much to prolong life, as to ensure that the remainder of the patient's

life should be passed in comparative comfort. Given the condition for which the operations were undertaken, few would wish for any such prolongation; and when an operation was spoken of as quite unsuccessful, it would often, in the opinion of the patient, have been successful. When the author spoke of an uninterrupted recovery, he, of course, only meant that the immediate result of the operation was to put the patient in a condition of comparative comfort. The author spoke of having done "only" 13 operations on the stomach; as though 13 were not already a large number. He asked whether the author had not put the question to himself—was it really worth while, in most of these cases, to attempt to alter the condition of the patient, in so far as the duration of life was concerned, from a period which might, perhaps, be counted by weeks, into one that might mean months?

Mr. LOCKWOOD asked the author to enlighten them as to the condition of some of these patients, in respect of comfort, after the operation had been successfully performed. He had a general impression that certain patients, on whom gastrostomy had been performed, were rendered more comfortable by what had been done for them, while there were others who did not care for the artificial opening. He remembered three patients who, by a curious coincidence, had been operated upon during the same week. Two of them died; not so much from the effects of the operation, but, rather, they continued to die in spite of it. The third was a young woman who had swallowed some acid, causing a tight stricture of the œsophagus. Gastrostomy was done; but he had learned that she was so discontented with the operation, that she deliberately allowed the opening to close up again.

The PRESIDENT pointed out that his remarks only applied to cases in which there was a lingering disease.

Mr. LOCKWOOD said he was referring in particular to one of the author's cases, in which the patient had lived 11 months after the operation. He would like to know from the author what was the patient's actual condition during that period; whether it was an easy matter to feed him through the opening; whether there was any escape of gastric juice, and whether he suffered from the irritating eczema which such patients were so liable to. Also, whether the man himself thought the opening a boon to him. In the few occasions in which he himself had been called upon to do gastrostomy, he had generally been called upon to operate when the patient was almost moribund, and the prospect of bringing such cases to a successful issue seemed to be almost *nil*. The proper time to perform the operation, if at all, was at the time when the patients ceased to be able to take soft solids, but were able to take a fair amount of liquid nourishment, or when they had ceased to swallow by an œsophageal tube. He had seen a case recently in which the tube was passed, and thus saved the patient from the performance of gastrostomy.

Dr. SNOW said that, apart from the immediate consequences of the operation, regurgitation was one of the most distressing inconveniences. He was interested in what the author had said respecting his having been able to prevent this by making only a small opening into the stomach. He asked whether the author had tried Alberti's method, in which the stomach was brought out by a subcutaneous wound above the cartilage of the seventh rib. He asked whether simple fibrous stricture of the œsophagus was not very rare. Apart from cicatricial strictures, these were, he believed, mostly malignant; sometimes akin to atrophic scirrhus

of the breast. In respect of the medical treatment of these cases, he asked the author whether he had tried the administration of opium and cocaine with rectal feeding. By such means it was possible to obtain comfort and considerable prolongation of life, even in the most advanced cases.

Mr. ALLINGHAM, in reply, said it was of course somewhat difficult to express an opinion as to the desirability of operating in these cases. When a man was in good health, his first thought was that he would refuse to undergo any operation, but when it came to the stage in which such an operation as colotomy or gastrostomy was necessary, he had rarely found any patient object. They really sought any means of relief that could be obtained by operative measures. He admitted that gastrostomy was a disagreeable and uncomfortable operation, but it was really a matter of choosing between two evils. In his own cases, the patients had expressed themselves as receiving great comfort from the operation. Of course the patients did not like the opening, nor did they relish being fed through the hole; but as to the relief which the operation afforded there could not be any doubt. As for gastro-enterostomy, that was quite another matter. That operation, he held, ought always to be done in every case of stricture of the pylorus, when there was any degree of dilatation of the stomach, the relief to the patient being quite remarkable. He referred to the cases he had brought forward in February last. One of the patients gained 3 stone in weight, and had been enabled to go back to her work as lady's maid. Although she had again fallen away, he maintained that such a result was sufficient to justify their attempting gastro-enterostomy in every suitable case. In all the cases in which only a small opening had been made into the stomach, there had been no regurgitation of fluid; and he felt convinced that the regurgitation, with its consequent irritation of the skin, was due to too large an opening having been made. He had never tried Alberti's operation, having found Jessett's method very satisfactory. If, however, it presented any advantage, he was quite prepared to give it a trial. With reference to fibrous strictures of the pylorus, he said that the curator at St. George's Hospital had for some time past been examining every pylorus that came into his hands, and he had already come to the conclusion that the existence of more or less fibrous contraction of the pylorus was far more common than was thought; and if this were the case, it was worth while bearing in mind that this condition might be absolutely relieved, or even cured, by pyloroplasty.

Dr. SNOW pointed out that the fact of these conditions being met with only on the *post-mortem* table, rather showed they had not given rise, during life, to any clinical symptoms.

May 20th, 1895.

THE ANNUAL ORATION—THE RECENT EVOLUTION OF SURGERY.

By A. PEARCE GOULD, M.S., F.R.C.S.

MR. PRESIDENT AND GENTLEMEN,—I am using no empty form of words when I say that our gathering this evening has lost much of its wonted pleasure from the absence from among us of Mr. Durham, who was so long and so prominently identified with this Society. In a remarkable degree Mr. Durham was the very personification of the great characteristics of the Medical Society of London, for he combined intellectual keenness and professional ardour with intense warmth of heart and kindly feeling. Every one knew him as the skilful surgeon and the very soul of honour; and we here knew him also as the wise administrator and the genial friend.

When our President, 11 years ago, Mr. Durham gave us of his very best in time, in thought, and in effort, and made us ever his debtor; but he has placed the Society under a still greater debt of obligation by his 10 years of service as its Treasurer. We owe it largely to his genius, which combined enterprise with caution, that we are now more handsomely accommodated and more financially prosperous than at any former time in our history.

Many of us remember the striking and valuable oration which Mr. Durham gave 14 years ago. His subject was the Surgery of the Future, and in his address he sketched out the lines along which the art he loved so well—and which he himself adorned—would progress in the immediate future. It is a striking testimony to his accurate appreciation of the new forces at work that he then foretold much of what has since been realised.

The subject that I have ventured to choose as my theme is The Recent Evolution of Surgery. I have selected it because, however unworthily I may deal with it, the subject, at any rate, is well worthy of attentive study. This has been true at every stage in the long history of our art, but never so true as to-day, and for those who, like myself, have had the opportunity of witnessing

during the last 25 years such a development in surgery as has never occurred before in a generation—nay, not even in a century or a millennium.

The origin of the surgical art is lost in the obscurity of pre-historic times, but for 2,000 years at least we are able to trace more or less clearly and fully its onward march. Its progress has been slow and at times intermittent. The light of science has shone more brightly—now here, now there, and great local schools have risen to fame, and then, alas! sunk into oblivion. Although the progress has been slow, it has been assured; and at almost any time in the history of the art we can imagine an orator addressing his fellows and asserting with truth that the present was better than the past. This reflection may well give us confidence in the future, and temper our boasting of the present with the expectation of the greater things still to be realised.

It is possible to measure the progress of our art either by the growth in the ideas to which it gives expression, or by the improved expression it gives to old ideas. Of method we find an almost infinite variety, and few surgeons are so devoid of all originality as not to add something to the constant advance of surgery as an applied art. The great principles and thoughts of surgery are few, and it is given only to Nature's giants to develop or to correct them.

By whichever standard we judge the progress of surgery within the last 25 years, we shall be bound to admit that never before was the advance so general, so rapid, so beneficent.

Inasmuch as mind is more than matter, and in the degree in which a truth is greater than any expression of it, the highest and truest standard by which we can estimate the progress of an art will always be the moral rather than the merely material. I believe the chief glory of this period lies in the almost entire transformation of surgical ideals that has occurred, rather than in the improved methods of expressing them. In this sense it may with justice be called the "golden age of surgery," and to apply to it the poor term "progress," which we also use for the slow march onward of the last 2,000 years, is altogether inadequate, and therefore to some extent misleading. I have accordingly ventured to use the word "evolution" to express this wonderful unfolding, enlarging, ennobling of the thought, spirit, aim, and ideal of surgery, in contradistinction to improvements in its

methods only, which may well enough be connoted by the poorer word "progress."

I propose, then, to show to what extent and in what direction the very life of surgery has undergone a striking evolution within the last 25 years. I shall ask you to test the position of surgery to-day, as compared with what it was when most of us first began its study, by its new estimate of the bearing of anatomical facts; by its higher regard for the integrity of the organism; and by its altered conception of its place and value as a healing art.

1. One great change that has come over surgery is the *removal of the formerly admitted anatomical restrictions upon surgical operations*. This is sometimes spoken of as the extension of surgery into new regions, and it is pointed out that organ after organ has been, as it were, captured by surgeons and shown to be a more or less fruitful field for their enterprise. That, I think, is but a very imperfect expression of the facts, and one that conceals their true significance.

For what are the facts?

We are all familiar with them. The operation of trephining probably dates from prehistoric times, and from that remote period up to a very recent day surgeons have confined their cranial operations to removal of more or less of the skull, and have most carefully abstained from interference within the brain within. Quite recently trephining has sunk in importance, and is now, as a rule, only an incident in an operation directed entirely to active treatment of the membranes and brain.

Similarly, while our immediate predecessors operated timidly, if at all, upon the posterior part of the spinal column, we operate upon the spinal membranes and cord, and also occasionally upon the anterior part of the vertebral column.

Of the surgery of the thorax the same holds true. Operations upon its walls were sanctioned long ago, and timid efforts were occasionally made to open and even drain the pleura, but the thoracic wall only was regarded as the legitimate field of surgical interference. Now not only is the pleura a common field of successful surgical interference, but the lung itself is freely operated upon; and the chief bar to a much greater development of pulmonary surgery is the difficulty attending the minutely precise diagnosis and localisation of the diseases of this organ.

The pericardium is aspirated or drained without hesitation, and the suggestion has been made not only to tap the heart itself, but to treat wounds of its muscular substance by careful suture, in just the same way as similar injuries of other muscles. The mediastinum, too, has been brought within the pale of legitimate surgery.

No single organ in the great cavity of the abdomen is now held to be beyond the reach of the surgeon's knife. The successful removal of huge abdominal tumours, which at first excited angry opposition and then admiring wonder, is now a commonplace event in every operating theatre in the world. This has been followed by the extension of surgical methods to one and another of the solid and hollow abdominal viscera, until now liver, spleen, kidney, stomach, and intestines, uterus and its appendages, gall-bladder and bile-ducts, ureters and urinary bladder, and even that most inaccessible of organs, the pancreas—one and all have their own surgical history and triumphs. In other words, the field of direct surgical interference was formerly limited to the limbs and to the common coverings of the great cavities of the trunk, to the exclusion of the great serous membranes and the organs contained within them. Surgeons were content to recognise that many organs and parts of the body lay beyond the limits of legitimate surgical interference, and they admitted it to be no reproach to their art to refuse to interfere with the peritoneum, the kidney, the lung, or the brain.

I submit that it is essential to a correct appreciation of the change that has occurred to notice that the advance has not been gradually or slowly made, but occurred practically simultaneously all along the line. Its explanation lies not nearly so much in increased momentum in surgical art as in a sudden removal of a restriction to its advance. Surgeons are not bolder now than in the past, and although their anatomical knowledge has in many directions been made more precise, and they are possessed of operative aids unknown to a former generation, it is not chiefly in these influences that we must seek an explanation of the fact we are considering, but in the removal of a barrier erected and supported by ignorance and misconception. The error consisted partly in a belief that a surgical operation is in its very nature lethal, what we now call pathogenic, but largely in the view that certain tissues and organs of the body are of such anatomical

delicacy, and so little endowed with either power of repair or ability to resist injurious influences, albeit that they are of prime importance in the animal economy, that to submit them to operation was to court certain disaster.

He who saw the removal of a subcutaneous fatty tumour entail suppuration and the risk of blood-poisoning could not contemplate with approval the removal of a kidney. When the surgical wound of a healthy joint was seen to be attended with the gravest risk to limb and even life, how could a surgeon dare to lay open and operate freely upon a huge serous sac like the peritoneum? When every surgical procedure entailed grievous risk and no means were known of certainly avoiding it, all surgeons felt the necessity of limiting operations to their reducible minimum; and when it was forced upon them that the deeper their incisions the greater the peril, what else could they think than that the mere depth of an organ and the means taken by nature to protect it from external violence were a clear intimation of its being beyond the scope of surgery?

Thirty years ago the body was mapped out into an operable area and an inoperable area, the distinction being based upon anatomical position and differences; but when surgeons understood the process of healing of uninfected wounds, such an anatomical classification of parts became meaningless, and a great barrier to the progress of surgery was at one moment removed. To-day we know that simple, well-executed surgical procedures are not in themselves the cause of disease (pathogenic), and that every tissue and organ of the body is endowed with a power of repair more than equal to the demand surgery makes. With this knowledge the whole anatomical barrier to the progress of surgery has vanished, and the problem has assumed an entirely different aspect.

From an anatomical standpoint the only bar to the feasibility of an operation is its mechanical impossibility.

But I must guard myself from being understood to maintain that to-day a surgeon is free to incise anywhere or to excise anything. That can never be.

The very removal of the anatomical restrictions upon the activity of surgeons has brought into relief the physiological restraints upon their art. Thus while the depth and important relations and the anatomical structure are no bar to the excision

of either kidney, the physiological importance of the organs is an absolute bar to double nephrectomy or to the removal of a single kidney when its fellow is *hors de combat* from disease.

A wandering spleen has been successfully excised, and such an operation is distinctly indicated where the organ gives rise to serious trouble from torsion of its pedicle; its place in the organism can be adequately filled by the bone-marrow, aided possibly by the lymphatic glands and sometimes by small masses of spleen tissues left behind in the gastro-splenic omentum. But, so far as we know, a wandering liver can never be treated in the same way; anatomically the operation is almost equally feasible, but physiologically it is barred.

Similarly, cerebral surgery is at present limited to the relief of pressure upon its substance, the excision of morbid growths at or close to the surface, and the evacuation of abscesses in its substance. With our present knowledge we have to admit that the medulla oblongata and the central portions of the brain are outside the field of surgery, not because they cannot be reached, or on account of any peculiarity of structure, but because of their physiological importance.

In fact the only limit in the anatomical range of his activities that a surgeon now recognises is the physiological one. He no longer asks himself whether this, that, or the other structure is too delicate to be the field of his interference, but only whether he can operate upon it without injury to structures necessary to life, or without inflicting upon the patient greater disabilities than those caused by the disease or injury he seeks to combat.

Thus the surgeon views the human body as a field for operations from an entirely different standpoint from that occupied less than a generation ago. We of to-day cannot, even in imagination, put ourselves quite into the mental attitude of those who immediately preceded us. In this new thought, then, we see one great sign of the evolution of surgery.

2. Closely connected with this change in surgical thought, and yet to some extent standing in contrast with it, is the *higher regard in which the physiological integrity of the organism is now held*. While no one tissue or organ is held by surgeons to be beyond the scope of their activities, all tissues and organs have assumed an altogether new and higher sacredness in their eyes. To use a

time-honoured but much abused phrase, surgery has become more entirely conservative in its aims than was ever the case before.

It is true that diseased structures are removed with greater freedom than ever and almost regardless of their situation; but never before have we seen such efforts made to limit operations to the removal of diseased parts and to save all healthy structures. I will mention four examples of the influence of this new spirit in surgery.

(a) My first example is found in the *diminished frequency with which amputation is resorted to* for injuries and diseases. I will not attempt to prove this by statistics, for they are in great measure useless for the purpose. Indeed, I think it quite possible that if we appealed to statistics only we might meet such an awkward fact as this—that more thighs were amputated at a given hospital last year, let us say, than was the case 20 years ago. For while amputation for some affections has been replaced by happier methods of treatment, we must not forget that, with greater safety attending all surgical operations, there are other series of cases which were before deemed hopeless, even at the cost of an amputation, which are now so treated.

Statistics may be good servants, but they are always bad masters. They are capable at the best of expressing only the grosser facts of human experience, and, as a rule, with much error bound up with their mathematical accuracy. The best of life cannot be measured and weighed; and were the statistical method the only one, or the chief, which showed the recent progress of the surgical art, the title of my address would be a misnomer; for of evolution mere numbers can tell us nothing.

When a statistician has said his last word on a man's height, bulk, weight, age, and fortune, we are still in total ignorance of the man himself, his true personality and value. And so with surgery. The aims of surgery cannot be weighed and measured; the soul of surgery is as impalpable as the ether.

Not for proof, then, but to gratify curiosity, and also that you may not think that these remarks are inspired by a suspicion that the so-called "facts" are against me, I have taken out the amputation statistics as given in the Surgical Registrar's Reports for Middlesex Hospital of the last two years, and compared them with those given in the similar reports for 1873 and 1874. I find that in this institution, in the two years 1873 and 1874, 2,382

patients passed under the surgeons' hands, upon whom 590 operations were performed, including 39 major amputations—by a major amputation I mean all amputations except those of the digits of either limb; 20 years later, 1893 and 1894, when the number of patients had risen to 2,957 and the operations were 1,554, the major amputations had fallen to 34.

In other words, while 16 per 1,000 of the patients treated by the surgeons in this institution 20 years ago suffered amputation, to-day the proportion so maimed has fallen to 11 per 1,000. Twenty years ago 6·6 per cent. of the operations in this hospital were amputations; to-day only 2·1 per cent. are of this nature.

These figures are small and not specially selected, and I do not quote them as anything more than a rough mathematical expression of a fact familiar to us all—that amputation has become much less frequent in surgical practice within the very recent period we are now considering.

What a fact that is!

A great and wholly unmerited glamour has been thrown around the operation of amputation. The interest attaching to its design and execution, and to the construction of a sound and useful stump, has done much to obscure the fact that an amputation at best is a confession of failure, a refuge of the destitute.

We have to admit that at times it is an inevitable step, and may be a great boon to the patient, saving his life or health, or freeing him from the encumbrance of a painful and useless member; all the same, however, it is a therapeutic tragedy, an irreparable disaster. But not so long ago surgeons took a special interest, even a pride, in their cases of amputation. To-day, I venture to say, there are no operations in surgery that excite less enthusiasm than amputations, none which are felt to be more opposed to the whole spirit of surgical art; and a surgeon rarely approaches one without not only a certain misgiving, but a painful sense of disappointment, if not of failure. Indeed the readiness with which he resorts to amputation is recognised to be a rough working test of a surgeon's unfitness to practise his art.

This is not only a great fact; it is the outward and visible expression of a great change which has passed over the whole mind and spirit of surgeons. There is more to interest an intelligent surgeon in the progress of a case of amputation to-day than there was 20 years ago; but to him this interest is

dwarfed into littleness by the violation of one of his most cherished instincts, in the sacrifice of healthy living parts in an effort to save or benefit the individual.

What is true of amputation of limbs is equally true of the removal of organs, although in some cases the advance here has not been so great. But I can at least point to excision of the thyroid gland replaced by enucleation of tumours of that organ, and to the removal of tuberculous deposits from the testicle and even from the kidney in place of excision of these organs.

(b) My second example I find in the *higher standard of excellence we strive to attain in the repair of injuries and operation wounds*. Where 20 years ago we only aimed at our patient's recovery, and the final closure of a wound, we now look for perfect restoration both of structure and function.

An incident that occurred in this room nearly 12 years ago is indelibly impressed upon my memory. The greatest of living surgeons had read a paper in which he described and advocated his then novel treatment of the direct suture of the fragments of a transverse fracture of the patella. Of the discussion that followed, only one speech has lived in my recollection; it was that of a distinguished surgeon and leading teacher, nearly 20 years Sir Joseph Lister's junior, who told him, in his terse phraseology, that the operation was magnificent, but it was not surgery. Not surgery! The idea of obtaining perfect structural repair of an injured part was so foreign to the thought of even our foremost surgeons, that this successful effort to grapple with an injury that often permanently crippled its victims was condemned as unsurgical, the object aimed at was considered outside the pale of legitimate enterprise and comparable only with the heroic but mistaken Balaclava charge.

The ideal then falteringly held up before us by Sir Joseph Lister, and which at first was entertained by so few, is now cherished by all, and firmly possesses the mind of every true surgeon. All do not strive to attain it by the same road; that matters not; the idea of obtaining perfect repair of injuries has been grasped, and it has raised at a bound our standard of surgical excellence. See what it has led to.

Other fractures than that of the patella are now submitted to direct suture if perfect repair cannot be obtained by our older—shall I say antiquated?—methods of treatment.

Dislocations which could not be replaced by external manipulation used to be left; the surgeons had exhausted their resources when ropes and pulleys failed to drag back the errant bone, and they were content to leave the case to unaided nature. Now no one would consent to utter such a *non possumus*, but would at once replace the bone by operation.

In obedience to the same impulse, the so-called "internal derangements of joints" are submitted to operation. This ideal finds another expression in the care taken in the suture of wounds where many structures are divided. Where, formerly, surgeons spoke and thought merely of bringing the edges of a wound together, they now speak and think of the careful union of divided structures so as to obtain the most perfect repair.

In the surgery of the abdominal wall the beneficial result of this serried suture of its different layers is very marked, and even such a detail as the splitting of the aponeurosis of the external oblique muscle in place of division of its fibres is not only attended to, but is found to be worth attending to. Another recent improvement of the same kind is the exact and serried suture of the divided tissues in cases of external urethrotomy, to secure perfect primary healing of the wound in place of the older and very disagreeable method of allowing the wound to slowly fill up.

Surgeons have ceased to view with approval the slow healing up of their wounds by the laborious process of granulation, and this not only because that process is slow, but because it fails to restore the parts in the same perfect way that "primary union" does. I might adduce other evidence of this, but I hope it is needless to weary you with proof that our regard for the perfect repair of injuries and operation wounds is to-day altogether greater than it was 25 years ago, and that a new ideal of excellence possesses the minds of surgeons.

(c) My third example of the influence of this improved surgical spirit is seen in *the successful efforts now made for the radical cure of hernia*. Most of us remember the time when the general opinion of surgeons was that a well-fitting truss adequately met the indications of a case of hernia. The desire to obtain a radical cure was entertained by only a few, who were held to be quixotic and unreasonable. To-day the men who regard a truss as the proper and satisfactory treatment for hernia are the marked men,

and the aim of surgeons generally is to obtain by direct operation, if need be, but anyhow to obtain, a radical cure of the deformity. This illustration of my point is so striking that by itself it would have substantiated my claim that the aim and whole ideal of surgeons are now far higher than they were 20 years ago.

(d) My fourth example of the same spirit I find in the *application of surgery for the relief of many of the smaller ills and deformities* to which flesh is heir. Look, for example, at the operations now performed for the relief of the various forms of talipes. I do not refer, of course, to tenotomy, which was introduced long before the period of which alone I am speaking to-night, but to the operations of tarsectomy and the like. Look, again, at the excision of varicose veins, the direct treatment of thrombosis, the excision of small moles, warts, lipomata, suspicious growths, unsightly scars, and the like.

While in some of these cases graver surgical principles are also at stake, such operations are mainly undertaken in obedience to a conviction, which we all now admit to be well founded, that surgery is rightly employed in remedying slight as well as graver defects of structure and function. These operations are the outcome of a new spirit among us, of what I have called the higher regard for the physiological and structural integrity of the organism. They are the expression of a new idea; and if the examples I have cited appear in any case to be trivial, remember that an idea is greater than any expression it ever receives.

3. In the recent practice of surgery we also find the expression of *a new conception of the real nature of a surgical operation and of the personal responsibility of the operator*. As I have already incidentally mentioned, an operation used to be regarded as in itself a potent cause of disease, and along with this was that other great misconception, that suppuration was sometimes a physiological, and not always a pathological, process.

Surgeons used to speak of "laudable pus," "healthy pus," "healing by suppuration," and so on. These phrases are gone—gone with the false ideas connected with them. We now draw a clear and sharp distinction between the physiological process of repair and the pathological processes of inflammation and blood-poisoning.

When surgeons saw nearly every wound suppurate, and erysipelas, septicæmia, pyæmia, gangrene, and secondary hæmorrhage

were frequent complications, and when they found that neither the surgeon's skill nor the patient's sound health, nor the use of any known dressing for the wound, or of none at all, was sufficient to guard against these appalling evils, what could they think but that an operation in itself was a cause of disease? Surgeons had only too great reason for knowing that, if by an operation they might rid their patient of one diseased condition, it was, as a rule, only at the expense of setting up another, and possibly a far worse, malady.

Those who have entered upon the study of surgery only within the last 15 or 20 years can form no adequate conception of the paralysing effect of these facts. The surgeon's confidence in his art was sapped at its very foundation, and, what was worse, his confidence in his own power of determining the issue of his cases was destroyed.

As a result, surgeons were with grim irony called "brilliant," if only they could execute with despatch and dexterity the feats of the operating theatre. If a large proportion of recoveries was obtained, the man was apt to be called "lucky"; if failures predominated, again it was his "luck," shoulders were shrugged, the Deity was blamed, and the surgeon took comfort in his "brilliancy." To-day all this is as a dead language to us; the very slang of the hospital theatre is gone. Instead of brilliancy in execution only, we demand success; and instead of speaking of "luck," we talk of surgical responsibility.

Operations still fail; but instead of blaming the Deity, we now blame ourselves for the result. For how do failures arise?

(1) We may attempt what we are unable to accomplish; such attempts should be made so as not to add to our patients' ills; we ought, at least, not to introduce any new element of danger where we cannot effect relief.

(2) An operation may be fatal from shock, its direct paralysing influence being more than the patient's powers can withstand.

(3) Or, again, an operation may be fatal by the infliction of some injury to a really vital part, or by what is called an accident, such as uncontrollable hæmorrhage.

(4) Or an operation may be the means of infecting the patient's healthy tissues with virus introduced from without, or from within, from the patient's own tissues.

So long as human nature continues what it is, with its tendency

to error in observation and judgment, surgeons will meet with these failures in their operations; but we cannot escape from the load of responsibility that our increased knowledge brings us, and we are bound to recognise that no one of us can any longer shield himself in cases of failure under the plea of ill-luck.

As vain is it for a man to try to sever himself from his own shadow as for a surgeon to share in the increase of knowledge and escape from the heavier burden of responsibility it brings. And, look at the causes of failure of operations as we may, we cannot get rid of the conviction that these causes are under the control of the operator in a sense and to an extent that was never the case before.

It takes but a few words to describe this great, this fundamental change that we have of late witnessed in the surgeon's estimate of the nature of his operations and of his share of responsibility in their success or failure; but no words of which I have command can adequately express the importance of the change thus indicated. The language of poetry alone is sufficient for that.

Whether we regard the relief of human misery resulting from it, or the patient labours of those who have established our new position, or the marvellous world of hitherto unknown life which it has revealed, or the entire revolution of nearly all of our most firmly held pathological doctrines it has effected, the story of the germ theory of disease must long remain without any parallel in biological science.

4. Closely connected with this, and arising from the same happy addition to our knowledge, *surgeons have apprehended that their highest ideal is to treat directly the causes of disease.* Up to the last few years surgical methods as applied to disease were crude in the extreme; they may be summarised as consisting of the removal of pathological products, the relief of tension, and the application of physiological rest.

Knowing nothing of the ultimate causes of disease, nothing could be done to combat them. Of the many beneficent results of this change I cannot now speak; my aim is rather to fasten attention upon the change of thought itself than upon its practical outcome. I will take merely one example, and that shall be the case of tuberculous disease.

For tuberculous disease of lymphatic glands the old practice never attained to anything better than the opening of abscesses,

and in this it only slightly anticipated Nature and in no way added to or supplemented her powers of dealing with the disease. To-day such a procedure is almost never adopted, except as a merely temporising expedient or a preliminary to a more radical operation. But, the existence of the disease being once established, the surgeon directs all his efforts to one single end—the removal, not only of the effete products of the disease, but of the active cause of the disease itself, the tubercle bacilli. As a result we have our patients well in a few days instead of their lingering on with slow suppuration for months and years, exposed all the time to a real peril of more widespread tuberculous infection.

In tuberculous disease of bone we witness the same change in the treatment. It was a step in advance when excision of a tuberculous joint replaced the older plan of incision of abscesses, followed, if the case did badly, by amputation. It was a further step in advance when excision was practised at an early stage of the disease rather than late, because, the disease being more limited, the operator was the more likely to remove all the infective material. It was, however, a far more important step onward when excision was superseded by arthrectomy, the very essence of which is the early complete removal of all the diseased and infected tissue, with the preservation of all the healthy parts.

From a pathological point of view, amputation and excision differ from one another only in degree; they are both of them empirical sacrifices of structures. But arthrectomy stands on an altogether different plane; it is the expression of a totally different pathological conception—the removal of the cause of disease, and not merely its products—as well as of the physiological conception of the preservation of healthy parts.

An equally striking change is seen in the treatment of chronic tuberculous abscesses—psoas abscess, and the like.

The old method of incision and drainage, with more or less of empirical washing out of the abscess cavity, was a grim failure. It often led to rapid death from septicæmia or pyæmia, and, when it did not, the suppuration continued and the abscess was said to degenerate into a sinus. So bad were the results that many of the most experienced surgeons refused to operate at all and left the abscesses to burst, for they recognised that where they could not interfere with advantage, it was their duty at least not to hasten their patient's end by an operation.

It was therefore a great advance when Lister showed us how to open these abscesses without introducing a new element of danger by external infection of the abscess. But that, after all, only led us half the way along the path. We reached the goal only when we further learned where and what is the active cause of such abscesses, and how that cause may be destroyed or removed. And so to-day we regard these cases, formerly so disastrous, as most hopeful, and as yielding some of the best instances of the successful attainment of the new therapeutical ideal of surgeons—the removal of the cause of disease.

I will not weary you with further illustrations. Your own experience will supply them in abundance. My point is that such a change in surgical treatment as this is not comparable with the replacement of one empirical method by another, or of one mode of dealing with the results of disease by another.

The dealing with the actual causes of disease is a new fact in surgery, the expression of a new idea, and the conception has at one step lifted the art to a higher level, and has made it worthy of the name “scientific.”

Could I point to nothing else, this alone would justify my assertion that we have witnessed within the last 25 years such a development of the spirit of surgery, such an increased adaptation to the requirements of mankind, that “progress” is far too tame a word to apply to it; let us call it evolution.

Two collateral modes of expressing this new surgical thought are, I think, worthy of special notice. The first is the ardour and also the success with which the surgeon now applies himself to the arrest of morbid processes in their *early stages*.

So long as the whole aim of the surgeon was to remove the results of disease, not to deal with its causes, he was content to wait, for mere convenience, until these products bulked large, until the case was “ripe” for treatment. But now that his object is to deal with the cause of disease, he has come to realise that the earlier he makes his interference the better.

He is justified in this, not only by the saving it involves to the patient—a saving whether of time or of comfort, of health or of tissue—but also by its enabling him to deal more directly and more effectively with the cause of disease, because he is unfettered by the amount or the kind of the morbid results of their action.

This thought has now such a firm hold upon the surgeon’s mind

that it has become a part of his instinct, and in any case of a failure the explanation which more readily springs to his lips than any other is that his interference was made too late. Indeed, in cases where we know nothing of the ultimate cause of the disease, as in cancer, the same principle inspires us to operate as early as the existence of the disease is recognised, and even before that, to remove "suspicious" nodules of disease, and so, if we can, to anticipate the origin of malignant growth.

We do not know as an indisputable fact that the first small nodule of a malignant growth is, or contains, the cause of the disease, but we argue from analogy that it is, or does. We know quite certainly that the cause of cancer, whatever it is, does not lose its power over the individual by effluxion of time; and influenced by this, but still more by our experience in cases where the cause of disease is known to us, we endeavour to combat the evil by the free removal of the morbid growth at the earliest possible moment.

My contention is that we have no absolute scientific warrant for so doing—we soon may have it; but yet the practice is universally commended and largely followed as a result of the fact that the highest ambition of surgeons now is to remove the cause of disease, to deal with it at its fountain-head or in the germ.

But we see this same tendency exerting itself in another direction—in the stimulus it gives to efforts to anticipate the graver terminations of morbid conditions. The older surgeons would quote a proverb and decline to meet evil half way, and would wait until disaster had come before they endeavoured to combat it. Such an idea is wholly foreign to surgical feeling to-day; we remove an extra-uterine gestation as soon as it is clearly diagnosed, lest it should rupture and cause a fatal hæmorrhage. If we can help it, we do not wait till our patients are moribund. We excise a diseased vermiform appendix lest it should cause a suppurative local peritonitis or a fatal general peritonitis.

In thus dealing with diseased conditions, not because of what they are in themselves, but to anticipate more grave accidental sequels to them that may arise, we give expression to a new surgical thought, and the practice therefore is to be placed on a different plane in our estimation from any mere improvement in surgical therapeutics along an old line.

5. The last indication of the recent evolution of surgery that I

will mention is seen in the introduction of what I will call *physiological operations* into surgery.

By a "physiological operation" I mean an operation performed on a part not itself the seat of disease or known to be the cause of existing disease, but by influencing which we can affect beneficially a gross morbid change in another part. It is a kind of substitutionary surgery.

There are two very closely allied instances of this class of surgical operation—the removal of the healthy ovaries in the treatment of uterine fibroma and of the healthy testicles in cases of advanced prostatic fibroma.

I am not now concerned with the results of these operations or with an exact appreciation of their true value; I only want to point out that operations of this kind stand in a category by themselves, that they are the expression of a new thought, and their introduction marks a new epoch in surgery.

This appeal of surgeons to some of the highest and most recondite of the laws of physiology in the pursuit of their art is a striking evidence of the new spirit by which they are influenced.

I venture to hope that I have made good my point that within the memory of all surgeons of middle age their art has been enriched by the introduction of new ideas, new aims, and a new spirit, and to such an extent has the whole thought of surgery been revolutionised that to-day the art is entitled to a totally different position in our regard from that held by it even 30 years ago.

Neither the time allotted to me nor a proper sense of the demand I have already made upon your indulgence will allow of my entering at all fully upon a consideration of the causes that have led to this happy result. The gain has come to us by no lucky accident; the new light has burst upon us by no sudden inspiration; but the truth has been unfolded as we have trodden the golden pathway of knowledge.

To some extent the advance, even in thought, has been gained by improvement of method, as by the introduction of anæsthesia, and of better modes of hæmostasis, and of new mechanical appliances. But in the main it has been as we have increased in knowledge of anatomy, of physiology, and particularly of pathology, that the change in surgical thought and purpose has been effected.

Good surgery is the outcome of a sound knowledge of these three sciences. As the strength of a chain is that of its weakest link, so the most minute knowledge of anatomy, combined even with a tolerably good appreciation of physiology, failed to evolve good surgery until a knowledge of the causes of disease supplied the lacking constituent.

Anatomy aids in diagnosis and guides the surgeon as to what he is to remove and how best to do it, but its only therapeutic indication is *excise*.

Physiology affords indispensable aid in diagnosis, points with unerring finger to the fell results of injury and disease, but bids the surgeon hold in high regard every part and power of the living organism, and calls on him in no uncertain voice to *save* and to *preserve*.

Out of this discord pathology brings harmony by telling how disease arises, and by uttering its note—*arrest, prevent*.

These words may mark for us the great stages through which our art has passed. Concerning itself at first with excisions, amputations, and such coarse modes, it rose to higher things by seeing that a nobler function was preservation, not destruction. From that of late it has advanced still further, as it has owned its chief ambition to lie in anticipating and preventing pain, disease, and death.

While in nature evolution is seen to be the outcome of the silent working of unintelligent forces, and many refuse to accord any part to the influence of a presiding mind, in the evolution of an art all admit the predominant influence of mind and of individual genius. Were I to close this poor attempt to indicate the main course of the recent evolution of surgery and the chief forces that have led to it without any reference to that master mind to which we owe the greatest impulse that surgery has ever felt, I should be doing violence to my own feelings and to yours also.

Although science knows nothing of nationality, and we here to-night rejoice in additions to our knowledge and to our powers of combating disease and death, whether they have come to us from a French Pasteur, from a Teuton Koch, from our Western cousins on the other side of the broad Atlantic, or from a son of that Eastern Empire now just rising above the horizon, we cannot help feeling a special pride in the fact that the name

that shines with an unrivalled splendour on the page of surgical history is that of the Englishman, Joseph Lister.

This Society is rich in traditions; the picture which hangs on our walls is a precious treasure, not alone as a work of art and the work of a great artist, but as reminding us of the very personalities of the men that were its founders and the leaders in our profession a century ago. Anticipating the future, we may be sure that it will for ever remain one of the proudest traditions of this Society that it was here, to us, that Joseph Lister made more frequent and more important communications than to any other kindred society in London.

This country has been the birth-place of many of the worthiest of men in every department of life, and in the profession of medicine, to which all civilised lands have contributed so richly, we take a foremost place.

Nature is not lavish of her choicest gifts; they often come to us at what we call long intervals, as if to enable us to judge of them with a true perspective. In the seventeenth century she gave us the immortal William Harvey to lay the foundation of our physiological knowledge; in the eighteenth century she gave us John Hunter, the great biologist and accomplished anatomist, the founder of scientific surgery; and in the nineteenth century she enriched the race with Joseph Lister, a man worthy to rank with Harvey and Hunter, not only for his genius, his powers of observation and reflection, his patience in research, and his scientific method, but even more for the magnitude and the beneficence of the results that have followed from his efforts.

It is a great thing to have and to hold in reverence our mighty dead; it is a better and a greater thing still to have and to honour the mighty living.

Long may this ancient Society flourish! Long may she retain in her fellowship this greatest of her sons! May she ever take a leading part in the working out of those great ideas which can alone ennoble our art! And may she never lack worthy followers of him who has taken the foremost place in the Recent Evolution of Surgery!

CLINICAL EVENINGS.

November 12th, 1894.

OPENING THE CÆCUM FOR INTESTINAL OBSTRUCTION CAUSED BY CANCER.

By D. H. GOODSALL, F.R.C.S.

MR. GOODSALL showed a man, aged 62, who was admitted into the Metropolitan Hospital on September 18th, 1894, with intestinal obstruction caused by cancer of the rectum. On the following day he had performed left inguinal colotomy but failed to bring the colon outside the abdomen, it being distended with a putty-like mass of fæces. He therefore passed two sutures under the longitudinal muscular band, and fastened one at each angle of the wound. On the second day after the operation he found the two sutures had torn through the band, and that several appendices had slipped out into the wound. There was no sign of any bulging of the bowel from flatus. He waited another three days and then removed the appendices, and found the colon in the old position. After another 24 hours' delay in the hope of some bulging taking place, the patient began to feel sick, was quite unable to take any food, and complained also of a good deal of abdominal pain. He then decided to open the cæcum, thinking that if he attempted left lumbar colotomy he would find that portion of the intestine distended in the same way as the sigmoid flexure, with consequent difficulty in bringing it out. He therefore opened the colon in the right iliac region; having sutured the parietal peritoneum to the skin, he found the cæcum and ascending colon just as distended as the sigmoid flexure was seven days previously. By pressing the fæces in both directions, he succeeded in getting about $1\frac{1}{2}$ inches of the front wall of the cæcum through the wound, and through this he passed two sutures parallel to each other, and in the long axis of the bowel, and about an inch apart. One suture was fastened to the skin about 1 inch from the

inner side of the wound, and the other in a similar manner to the outer side of the wound. The cæcum was then opened by an incision about 1 inch in length between and parallel to the two sutures. Four Spencer Wells' clip forceps were then applied, two at each angle of the opening into the cæcum, to assist in dragging the colon outside the wound. The patient was kept on the operation table for 48 hours. This was the third time he had opened the cæcum. In the first case he fastened the cæcum into the wound, and waited 42 hours before opening it, but he got no adhesions between the opening in the cæcum and the parietal peritoneum. In his second case therefore he decided to open at once, and to keep the patient on the operation table for 48 hours so as to run the minimum of risk of leakage. The first patient died within 48 hours, but the second lived for two years and three months. The present case had been operated upon just seven weeks since. If care were taken to keep the patient at rest after the operation, opening the cæcum appeared to be quite as safe as opening the colon in the left iliac region. It is a very easy operation, and another advantage was that one did not get any prolapse as on the left side. So far as the second case went, it was evident that a patient could live very well without a colon, as this one put on 12 lbs. in weight after the operation, and for 18 months followed his usual occupation.

Mr. HARRISON CRIPPS said he had opened the cæcum some half-dozen times, thinking the obstruction was low down, whereas it was high up, so they had to sew up the wound and make an opening on the opposite side. He thought, however, there were great objections to opening the cæcum unless the circumstances absolutely rendered this course indispensable. When the obstruction was due to cancer of the rectum he thought that inguinal colotomy was the best operation. In two or three of the cases in which he had done this the greatest trouble was afterwards; the fæces being liquid there was great difficulty in keeping the patient clean. The operation was not therefore in any sense a rival to the inguinal operation in the treatment of cancer of the rectum. He asked why the author, when he found it impossible to draw the cæcum up to the skin, did not attach it to the parietal peritoneum. More than once, when this had happened to himself, he had adopted this method in preference to attempting to draw it out. In that way extravasation was effectually prevented.

Mr. KEETLEY said that in a case of cæcal colotomy in which it was important to evacuate the contents rapidly, it occurred to him that the vermiform appendix might in some subjects be made use of to act as a kind of spout. It could be drawn out and the end cut off, and after dilatation this might be sufficient to give immediate relief to intestinal distension with gas or fæces.

Mr. H. ALLINGHAM said that he had opened the cæcum 11 times, but only when the malignant disease was so far down that it was impossible to open the colon in any other part. He agreed that the discharge of liquid fæces constituted a great objection to opening the cæcum, but he did not agree with what had been said as to the right course to pursue when one cut down on the sigmoid flexure and found it collapsed. What he did himself was to enlarge the left inguinal opening and introduce the hand into the abdomen, and commencing at the cæcum to trace the colon upwards to find out where the stricture was, and that having been done one was in a better position to decide what would be the best course to pursue. The nearer the cæcum one got the more liquid were the motions, and for that reason it might in certain cases be preferable to operate on the transverse colon. In cases in which the sigmoid flexure was very greatly distended he took no trouble to pass sutures into the cæcum, but fixed up the intestine by some of the appendices and inserted a guide stitch into the gut. This enabled the operator to find the gut without any danger of missing it and so cutting into the peritoneum. If it were necessary to open the cæcum he thought it would be easier to cut down upon it and bring it up to the belly wound, and make a small incision, inserting a Paul's tube through which fæces could be conducted to a receptacle under the bed.

Mr. GOODSALL, in reply, said his patient was so fat and the bowel so distended that the only part he cared to touch was the longitudinal band. When he opened the cæcum the whole of the large intestine was filled with this putty-like fæces, in fact the whole bowel was tense like a large German sausage. The patient came in with a history of not having properly emptied the bowel for nearly four weeks. It was therefore impossible without considerable risk of extravasation to stitch the peritoneum to the bowel except in the region of the longitudinal band.

CASE OF LATE INHERITED SYPHILIS.

By F. DE HAVILLAND HALL, M.D., F.R.C.P.

CHARLES B., aged 16, applied at the Throat Department at the Westminster Hospital on January 14th, 1891. The patient stated that up to the eighth year there was nothing unusual in the shape of his nose. About this time an unpleasant smell proceeding from the nose was detected. For two years and a half he attended at the Throat Hospital, Golden Square, he was an in-patient for a fortnight, and the interior of the nose was scraped.

When he came under my care in January, 1891, there was a foetid discharge from the nose—the septum was completely destroyed, and the bridge of the nose had given way. Under treatment he much improved, and discontinued attendance in April, as he was going to a training ship.

I lost sight of him until October 11th of this year. He then

had extensive destruction of soft palate, ulceration of the pharynx, and thickening of epiglottis. He is taking 10 grains of iodide of potassium every six hours, and the throat is frequently sprayed out with a solution of boric acid and borax. When he first attended there was a momentary doubt in the diagnosis, as excluding the condition of the nose there were no other signs of inherited syphilis, *i.e.*, the corneæ were clear, the teeth were not notched, and there was no history of snuffles or rash. Moreover he had two older sisters and one younger alive and well. One sister had died at the age of seven months from convulsions. At the time, however, of the boy's first attendance at the hospital, his mother was an out-patient under my care, with well-marked tertiary syphilitic ulceration of the throat.

Late inherited syphilitic lesions of the naso-pharynx are not very common, and they are often the first and only evidence of the diathesis. In the past the true nature of this condition was overlooked, and many of the cases have been attributed to struma. I have myself seen cases in which this mistake had been made.

Dr. Colcott Fox showed an example in a girl of 14 at this Society in 1890.

Some of these cases occur after the period of puberty, and then of course there is the risk of regarding them as being examples of early tertiary syphilis.

Mr. SPENCER WATSON pointed out that the manifestations of inherited syphilis were met with at a much later period than in this case. He himself had seen many instances of interstitial keratitis, with other remarkable appearances which were recognised as those of inherited syphilis, as late as 20 and even 30 years of age. Only a short time ago he had brought before the Ophthalmological Society the case of a man, 31 years of age, with interstitial keratitis. Although there were no marks on the teeth indicative of an hereditary taint, nor was the history very strongly in favour of the keratitis being due to inherited syphilis, the course of the disease in the cornea was very characteristic, and he himself had no doubt that it was a late manifestation. It was interesting to note that, in this particular instance, there were considerable irritation and vascularity of the pharynx and nasal mucous membrane. That the condition of the cornea and the nasal and pharyngeal troubles progressed *pari passu*, and were relieved by the same treatment, was in itself very significant. For a long time the case went on without any improvement under moderate doses of mercury, and it was only when considerably larger doses were given and the gums became affected that the conditions began to improve, and then they did so rapidly. He asked the author whether he had noticed as a manifestation of inherited syphilis, chronic pharyngitis and thickening of the mucous membrane of the nose. In this

case the iris was affected, and very likely the choroid also, sight having been almost destroyed in one eye.

Mr. ASTLEY BLOXAM asked whether the treatment of the patient eight years ago was confined to iodide of potassium or whether he was put under a course of mercury. He said that, in his experience of these cases, the disease seemed to be arrested and stopped for a time by the administration of iodide of potassium, but that patients treated in this way invariably relapsed after a time. There was no safety except in a regular systematic course of mercury. He remarked that the patient had returned with a damaged palate, which was not present when first seen.

Dr. HALL, in reply, said he had not recognised any form of chronic pharyngitis peculiar to inherited syphilis, apart from ulcerative syphilis. It was only five years since that he saw the boy. He had been given iodide of potassium only, under which he improved very rapidly. That fact confirmed what Mr. Bloxam had said on this point, and it was a thing he should bear in mind in future. He was unable to give any further information as to the date when the mother contracted syphilis. He admitted the existence of the gothic-arched palate, but added that this detail was unnecessary, so far as diagnosis was concerned, for his hesitation in this matter had been of very short duration.

A SUCCESSFUL CASE OF ANASTOMOSIS OF THE SMALL INTESTINE.

By W. HARRISON CRIPPS, F.R.C.S.

THE patient, a woman aged 31 years, was admitted into St. Bartholomew's Hospital in February last with abdominal tumour. A large fibroid was removed from beneath the broad ligament, and the patient did well until the 18th day; then she developed signs of intestinal obstruction. For this, Mr. Bruce Clarke did abdominal section, and opened the small intestine, which was adherent to the under surface of the abdominal scar. This was left open as an artificial anus. Later, two attempts under an anæsthetic having failed to close this, an elliptical incision was made into the abdominal wall, including the portion of skin in which was situated the artificial anus. The original seat of obstruction in the intestine was found 9 inches lower down, and due to adhesion of the gut to the scar in the broad ligament. In detaching this the gut was almost torn through, and so he excised this portion of the gut together with the artificial anus, removing altogether eleven inches and a half of intestine. The part removed was high up in the jejunum. Intestinal anastomosis was then performed by Maunsell's method,

additional Lembert's sutures being passed for safety. The patient recovered, and was continuing her work as a domestic servant. It was best in these cases to make an artificial anus first, and then perform anastomosis later. He preferred to use a simple suture rather than resort to bone-plates or bobbins.

Mr. ASTLEY BLOXAM asked why the author had not employed horsehair in preference to silk—the latter being so much more difficult to manipulate.

Mr. H. ALLINGHAM agreed as to the preference to be given to secondary as compared with primary anastomosis. He himself had had seven cases of the kind. In four of them the operation was secondary, that is to say, the patients were first colotomised, and in the others the resection was done for primary distension. All the three patients in whom the resection was primary, died; whereas the others in whom resection of the stricture was secondary to colotomy, all recovered. These figures bore out the remarks made by the author on this point. With regard to the method employed in most of the cases, he had used Mayo Robson's bobbin, though in one case he had employed Maunsell's plan. In that case a stitch gave way and the patient died. In the cases in which he had used the bobbin the patient had recovered. He pointed out that the bobbin acted as a sort of splint to the intestine, and prevented dilatation or constriction of the gut at the seat of suture, and if that could be prevented for 24 hours or even longer it was really a very important advantage. The passage of flatus along the intestine would be very likely to distend the intestine at the point of juncture, and by putting the stitches on the stretch might favour leakage. He observed that having once narrowly escaped cutting into the intestine when cutting through an old scar, he now always made a practice of keeping well to one side of the scar in order to avoid any adherent intestine.

Mr. KEETLEY said he had had a successful case in which he had performed Maunsell's operation, the patient being a girl in whom he had to excise a portion of intestine in the neighbourhood of the ileocaecal valve, for a tumour in its walls. Though very ill and emaciated at the time of operation, she made a good recovery; and he found the operation an easy one. Not being perfectly familiar with the details of the operation as laid down by Mr. Maunsell, he had put stitches in the serous membrane over the junction, but he had come to the conclusion that this was not necessary. With regard to the question of time, when one had a choice as to this, he observed how extraordinarily patients who were reduced by an emaciating illness that interfered with nutrition, supported operations on the intestine—even such operations as enterectomy. By emaciating diseases he meant chronic inflammatory diseases, and he excluded cancer cases, for elderly patients with the cachexia of advanced cancer often succumbed merely to colotomy. As to which was the best mode of effecting intestinal anastomosis, he said that he did not see how anybody could have a very strong opinion one way or the other; for no one could have had sufficient personal experience to settle the question.

Mr. CRIPPS, in reply, said he had always used silk, simply because he had always been accustomed to use silk, and most surgeons preferred to use things to which they were most accustomed.

CASE OF DISLOCATION OF THE HUMERUS WITH FRACTURE AT THE SURGICAL NECK.

By H. H. CLUTTON, F.R.C.S.

THE patient, a boy aged 13 years, was admitted to St. Thomas's Hospital on March 19th, 1894, the wheel of a van having passed over his left shoulder and the left side of his chest. There were severe shock from injury of the left lung; marked depression of the side of the chest, with fracture of many ribs; and wide-spreading surgical emphysema. He remained in a precarious condition for some days, and then slowly improved. Eleven days after the accident he had sufficiently recovered for an anæsthetic to be administered, and when this was done, diagnosis of dislocation of the shoulder with fracture of the surgical neck of the humerus was confirmed. The head of the humerus lay immediately beneath the clavicle, firmly fixed between it and the outer side of the coracoid process; the upper end of the shaft lay to the outer side of the head of the humerus, the shortening being marked. A very little manipulation showed that the head of the humerus could not be moved from its new position without incision. A cut was therefore made from the clavicle down to the seat of fracture, which was found to be oblique and above the insertion of the pectoralis major. The capsule of the joint was opened, and traction failing to pull down the head of the bone, the capsular wound was enlarged upwards and inwards, and in doing so the tendon of the biceps was divided. The head of the bone was then returned to the glenoid cavity by direct pressure and traction. A drill was passed vertically through the head of the humerus from the articular surface down the centre of the bone into the lower fragment, an ivory peg driven into the hole thus made firmly fixing the two fragments together; by this means bandaging and splints were avoided. The divided biceps tendon was sutured with fine silk, and the capsule closed with catgut. The union of the bone felt quite firm on April 25th. McBurney's traction hook would have been successful in bringing the head of the humerus down, but his paper had not then reached England.* At the present time all the movements of

* 'Annals of Surgery,' 1894, vol. i, p. 409.

the shoulder joint are perfectly performed, although passive movement has not been practised during healing. There is now a keloid condition of the scar, though the wound healed quickly without suppuration.

CASE OF POPLITEAL ANEURYSM.

By J. ASTLEY BLOXAM, F.R.C.S.

THE patient, a man aged 50 years, was admitted into Charing Cross Hospital in October, 1890, with popliteal aneurysm. Compression and other means of treatment having failed, the femoral artery was ligatured in Scarpa's triangle, and the patient left the hospital later with the aneurysm solid and much smaller. In 1893 he was again admitted for coldness and numbness of the right foot, which was worse when lying down. The solidified aneurysm was dissected out and the wound rapidly healed, the man being cured of his pain and numbness.

Dr. C. J. Arkle reports as follows on the specimen of clot after removal:—

The clot is as large as a good-sized pear; it is not very adherent to the walls of the sac. It is quite firm and rather elastic. At the upper part is a crescentic layer almost an inch thick, which is more homogeneous than the rest. All the clot in the recent state was of a reddish colour, but there were some pale areas which are now more completely decolorised in the lower part.

The clot is in many places "tunnelled" by wide spaces.

Microscopically.—The clot shows little or no tendency towards organisation.

Its consists almost entirely of fibrin forming coarse meshes and alveoli, a few still containing blood corpuscles.

Near the periphery the clot is paler and of a more yellow colour, but nowhere can any new blood-vessels or cell elements of any kind be made out.

SPECIMENS OF RENAL CALCULI REMOVED BY NEPHRO-LITHOTOMY.

By J. ASTLEY BLOXAM, F.R.C.S.

MR. ASTLEY BLOXAM showed some enormous renal calculi which he had removed from a woman aged 38 years, who died from shock, six hours after the operation. The calculi shown weighed 344 grammes, and were composed of ammonio-magnesian phosphate. Some of them were large and moulded to the shape of dilated calices, some flattened and "faceted" by pressure, and others were quite small.

AN UNUSUAL CASE OF VILLOUS TUMOUR OF THE BLADDER.

By E. HURRY FENWICK, F.R.C.S.

MR. HURRY FENWICK showed a patient from the neck of whose bladder he had removed a villous growth. He divided these tumours into two classes, viz., the commoner (92 per cent.), in which the patients complain of symptomless intermittent hæmaturia; and the rarer variety (8 per cent.), of which the patient was an example, in which irritability of the bladder and obstruction to the stream form the first symptoms noticed. In the latter class the irritability is due to the growth falling on to the outlet of the bladder or growing around it, thus obstructing the stream. In sessile growths on the posterior wall the removal is less easy than the long pedicled tumours, but the danger is not so great. Where the tumour is pedicled and falls on the urethral orifice, the removal is easy, but the surgeon has to reckon with those backward pressure changes which obstruction induces in the kidneys. He himself made it a rule absolute, never to cystoscope a patient with typical symptoms of a villous growth, unless he was permitted and prepared to remove it then and there, if it proved to be benign.

CASE OF A CRETIN UNDER THYROID TREATMENT.

By ARCHIBALD E. GARROD, M.D., F.R.C.P.

DR. GARROD showed a girl now 9 years of age, a cretin, who had been placed upon thyroid treatment by the late Dr. Hadden.

She came of a bleeder family and was a typical cretin, though not of a very extreme type. On February 20th, 1893, she was put on half grain doses of powdered thyroid tabellæ. In April the dose was increased to 1 grain twice a day, and later to 3 grains once a day. She was kept at this dose for a year, and in May, 1894, the dose was reduced to 2 grains once a day. The child was at present hardly recognisable as a cretin. She was in the first standard at school, could recite poetry, &c. She had grown 5 inches in the 21 months since the treatment was instituted, but the increase in weight had not been proportionally great. There had at no time been any untoward symptoms during the whole course of the treatment. This was a case in which the treatment had been attended with considerable benefit. He had arranged for two other such patients to be present, but, owing to the bad weather, they had not put in an appearance. One of these was a boy, also aged 9 years, in whom treatment had not proved nearly so pronounced a success. That was a much more extreme case. The cases were interesting, as showing that in cretinism much less satisfactory results were to be obtained from the thyroid treatment than in myxœdema, since one can only bring the children up to a certain point, and then they have to start at the level of much younger children, their education and development being so much in arrear. The third case was that of a child 2 years old, and at that early age the chances of success were much greater.

A CASE OF MYCOSIS FUNGOIDES.

By MORGAN DOCKRELL, M.D.

It will be within the memory of some that this man was exhibited at a meeting of this Society last session, when the details of his history, and his appearance on admission to St. John's Hospital, were carefully gone into, and are reported in the Transactions of the Society. At that time he was under the care of Mr. Hitchins, who transferred him over to me on March 10th, 1893, with the following note: "This case has been under my care for three months without making any improvement." It is needless to add that all the generally recognised treatments had been employed.

His cutaneous condition on March 10th was briefly a *universal* itching dermatitis, with a number of well-marked red scaling patches, notably one over the left eye, where the outer half of the hair of the eyebrow has been rubbed off. Papules were scattered over different parts of the body, appearing and remaining for a time, ultimately disappearing. Between the lower ribs and the crest of the ilium there was a raw fungating mass with large, coarse, flabby granulations, bleeding easily, of four years' duration, projecting out from the surrounding ulceration, which presented a well-marked elevated margin.

On the side of the right arm, below the elbow, was a circular ulcer of six years' duration.

On the outer side of the right leg there was a crescent-shaped ulcer.

My object in bringing him here so soon is to show the very marked improvement which has taken place from the use of "resorcin."

March 10th.—Resorcin 10 per cent. with vaseline was applied to side and leg, and ichthyol, 30 per cent., to arm and over left leg.

A week later resorcin was increased to 30 per cent.

March 30th.—All ulcerations were dressed with resorcin, 30 per cent., and internally resorcin, 3 grains, was given daily. After the administration of resorcin internally for a week, the itching, which had been intolerable, became better.

April 20th.—Nine grains of resorcin were given daily, since when there has been no itching.

June 8th.—Resorcin internally was further increased to 12 grains daily; local treatment still the same. Leg well for a week.

July 18th.—Resorcin internally was stopped, owing to diarrhœa having set in; pure resorcin, however, was applied to the wounds. Arm completely cicatrised over.

August 10th.—Resorcin was again given internally, and has been continued up to the present, and the ointment of 30 per cent. has again been resorted to.

So far as this single case guides one, it indicates that resorcin is a remedy which exercises a very beneficial effect on this disease. In conclusion I would point out:—

1. The great improvement which has taken place in the general

health, and which did not take place during the preceding three months whilst under the same dietetic treatment, but without resorcin.

2. The immediate amelioration of itching after its internal administration.

3. The healing of the two ulcers on the limbs.

4. The remarkable subsidence of the fungating mass, and the healing of the ulceration round it.

5. The fact that no new papules have appeared.

6. That there are patches of healthy skin appearing in the reddened patches.

A CASE OF ADENOMA SEBACEUM.

BY MORGAN DOCKRELL, M.D.

THE present case seems to me to be one of sufficient interest to submit to the opinion of this Society. To begin with, according to Pollitzer, the number of cases reported so far hardly reach 20, and therefore there is a certain necessity that each case as it comes under notice should be reported. Then there seem to be very different varieties of the same type, and telangiectasis, which is so prominent a sign in this case and in *Vidal's*, is apparently wanting in the case reported by Pollitzer (and which is, singularly enough, the first case reported in America). The distribution is generally symmetrical, as in this case. In Jamieson's case, Pollitzer's, and one of Crocker's the lesions were unilateral. Further, whereas the greater number of cases have been either congenital, or have occurred in infancy, this case did not commence till after 4 years of age, Caspary's till after 17, Jamieson's at puberty, and Pollitzer's at 39. And lastly, some of the cases have shown deficient intelligence, with a tendency to epilepsy, which is clearly present here, the noteworthy point being that the fits preceded the eruption by four years.

A. J. K., aged 9 years.

Family History.—Father and mother have always enjoyed good health. Is the eldest living of a family of eight, four of whom have died: one with bronchitis, another with croup, a third with measles, and a fourth from injuries received at time of birth. The three other children are healthy.

Previous History.—Since seven weeks old has suffered from fits, always having one a day, except when taking large doses of bromide of potassium.

Up to 4 years of age there was no sign of any eruption. When about $4\frac{1}{2}$ years old, a number of small, red swellings appeared on the face, and later on developed in the body.

Present Condition—

Face.—A number of well-marked “vascular” tumours most abundant in the centre of the face, but scattered all over it, better marked on the left cheek than on the right. There is superficial scarring on both cheeks, better marked on the left, with minute freckle-like pigmentations scattered on both cheeks, and extending beyond the telangiectasis.

Right Upper Eyelid—Inner Side.—A small white nodule. *Outer Side.*—A red papule.

Right Lower Eyelid.—On outer side, another papule is present.

Midway between ext. canthus of right eye and anterior margin of helix, an irregular small, elevated patch, and also an irregular white streak beneath it.

Right Ear.—On the upper margin of the helix there is a small, slightly raised soft plaque.

Left Side—Eyebrow.—On the outer margin, an irregular, slightly elevated patch of erythema, fading on pressure, leaving pigmentation when the blood is pressed out.

Left Upper Eyelid.—Two soft, irregular, slightly elevated plaques.

Left Ear.—Behind and below left ear an erythematous patch.

Angle of Jaw.—A papule.

Right side of Neck.—Some glandular enlargement.

Trunk—Front and Sides.—A number of papules and nodules, white in colour, firm to the touch, and in addition numerous small telangiectases and punctate freckles. Also here and there may be seen some minute dark moles, which were not congenital. No scars are present.

On the left groin and lower part of abdomen and upper part of hip, an irregular elevated patch of a faint reddish hue, fading on pressure with an enlargement of capillaries. There is also a large nodule the size of a pea, situated midway between the superior angle of ilium and the pubes.

Back.—Over the last dorsal and first lumbar, and slightly to the left of the spinal column, there is a faintly red patch, irregular on surface, and not indurated.

On the left side there are two small plaques.

Right Buttock may be seen a pale-red patch, together with a number of moles, nodules, and telangiectases.

Subjective Sensations.—None.

REMOVAL OF EXTENSIVE FACIAL EPITHELIOMA.

BY HERBERT SNOW, M.D.

DR. HERBERT SNOW exhibited a labourer, aged 56, who came under treatment in May last, with a huge fetid fungous mass, of two to three years' duration, occupying the whole left face, from the middle line of the nose to beyond the ear, from the inner end of the eyebrow to the angle of the jaw. The right cheek was occupied by an old syphilitic cicatrix, with two rupial patches. The tumour (microscopically proved to be epithelioma) had been excised with the thermocautery; a small healing sore on the left temple now only remained. There was no lymph-gland disease. The case illustrated the clinical point, first brought out by Sir James Paget, that malignant growths developing on a free surface, without hindrance from over-lying tissue, were peculiarly tardy in infecting the glands; and, secondly, the maxim that palliative operations involving the division of cancerous parenchyma should be conducted with the cautery, and not the knife. Cutting or scraping cancer-tissue only makes the remainder proliferate more actively; whereas burning this remarkably checks the cell-development, and promotes cicatrization.

A CASE OF POLYPI AND HYPERTROPHY OF THE TURBINALS.

BY W. SPENCER WATSON, F.R.C.S.

A GENTLEMAN of about 63 years of age, after several operations for the removal of gelatinous polypi extending over a period of 13 years at varying intervals, was found to have enormous hypertrophic enlargement of the posterior extremities of the turbinals

(inferior). These were removed, and the middle turbinal of the left side also. In the case of the left inferior turbinal, the whole length of the membrane up to the anterior extremity was severed by the ring-knife. On the right side, the posterior two-thirds only. Both hinder extremities were seen to have the nævoid enlargement characteristic of the hypertrophy in this region, and the lower sides of each extremity had also pendulous small polypi of the gelatinous kind. On the left side more than a dozen of these pendulous bodies, which had been felt before the operation to be lying free in the naso-pharyngeal cavity, occupied the lower half of the end of the turbinal. Mr. Watson expressed his opinion that it was better in these cases to take away a considerable length of the turbinal in order to give free breath-space in the nasal fossæ. He pointed out that the flattened middle turbinal was studded with polypi on both its surfaces, and that unless the bone had been removed it would have been difficult or impossible to reach some of the polypi lying between the turbinal and the outer wall of the nasal cavity. Much benefit resulted from the treatment, and the relief was experienced very rapidly and with a minimum of pain, and scarcely any bleeding. A severe cough that had been troublesome for several years entirely ceased. The specimens were exhibited with drawings.

February 11th, 1895.

MALFORMATION OF SKULL UNASSOCIATED WITH CEREBRAL SYMPTOMS.

By LEONARD G. GUTHRIE, M.D.

DR. GUTHRIE showed a boy, aged 4, who presented in a striking degree the peculiar malformation of the skull known as scaphocephalus. The child was first seen when 10 months old. He was the youngest of seven children, none of the others being similarly affected. On the first occasion all trace of the fontanelle had disappeared. There was no sign of rickets. At 6 months old the infant had four teeth. The intelligence was decidedly above the average and he had learned to talk quite early. He pointed

out that the salient features of this skull formation were (1) its length, (2) its diminished breadth, (3) the presence of a well-marked sagittal ridge, (4) the absence of parietal eminences, and (5) the protuberance of the frontal and occipital regions. The greatest circumference round the top of the skull was 21 inches ($18\frac{1}{2}$ inches at 10 months), the length being 8 inches (7 inches at 10 months). The width was $4\frac{5}{8}$ inches ($4\frac{1}{2}$ inches at 10 months), and the bi-mastoid and bi-frontal were each 5 inches. A perpendicular line drawn down the side of the skull from the centre of the coronal suture passed 1 inch in front of the auditory meatus. He doubted if the condition could be properly described as pathological. It might be simply a freak of nature or a reversion to some aboriginal type. It might also be due to intra-uterine inflammation. He referred to the literature of the subject and particularly to a paper by Sir William Turner in the 'Edinburgh Medical Journal' for 1865, who had pointed out that the formation is one which may present itself in every race and clime, that it has been observed in the skulls of ancient Egyptians, and that it can be observed in Scotchmen of the present day.

The PRESIDENT asked whether the author was enabled to say anything as to the usual condition of the intelligence in persons presenting this peculiar formation. He had seen a man of the highest intelligence who presented this formation in a marked degree.

Dr. GUTHRIE, in reply, said this was the only case that had come under his observation. He added that it did not seem to matter much, provided the brain was enabled to develop, whether the growth took place antero-posteriorly or in the usual way.

COCCYGEAL EXCISION OF THE RECTUM AFTER A PRELIMINARY COLOTOMY FOUR YEARS AGO.

By F. SWINFORD EDWARDS, F.R.C.S.

J. H., a man, aged 61, came to St. Mark's Hospital, on February 14th, 1891, complaining of frequent action of the bowels, much straining and pain on defæcation with passage of blood and slime. These symptoms had lasted for a year. The entire lumen of the rectum was found to be involved by cancer which extended up for 4 inches. The finger could not reach healthy mucous membrane above the growth.

On February 24th I performed a left iliac colotomy, and on

March 9th, the rectum in the meantime having been daily washed out with some antiseptic fluid, a coccygeal extirpation of the rectum was performed. The portion of bowel removed measured nearly 5 inches. On April 15th he left the hospital. Bowels acting well through the artificial anus; no prolapse; no recurrence; rectal wound cicatrising rapidly. His temperature had never risen above 100°.

CASE II.—*Sacro-Coccygeal Excision of the Rectum.*

Mrs. B., aged 50, was admitted under me into the West London Hospital on August 29th, 1894, for rectal cancer. The growth, which occupied the entire circumference of the bowel, measured about 2 inches in length. It extended to within 3 inches of the anus below, whilst its upper limit was on a level with the middle of the sacrum. It had hard and raised edges and was ulcerated on the surface. It did not appear to have formed any extra-rectal adhesions. The patient stated that for nine months she had had a rectal discharge and for the past four months she had noticed blood with some pain at stool. She had sought relief at a hospital where she was treated for "piles," but naturally got no better! She is the mother of 12 children and there is no history of cancer in her family. On August 31st, the patient being under ether, she was placed on her left side and with the assistance of my colleague, Mr. Bidwell, I made an incision reaching from rather above the middle of the sacrum to within an inch of the anus in the mid-line. The coccyx was then exposed, isolated, and removed. As the growth evidently extended to a higher level, the attachments of the sacro-sciatic ligaments on the left side were divided and a piece of the sacrum was divided by saw and cutting forceps. The incision through the sacrum extended from the level of the third posterior sacral foramen on the left side obliquely downwards to the sacral apex on the right. The posterior aspect of the bowel having been cleared it was isolated below, *i.e.*, about 2 inches above the anus, and clamped by rubber tubing and forceps, below which the gut was divided. The dissection of the bowel was now continued upwards. At the level of the growth anteriorly it was found to be impossible to strip off the peritoneum. So this was freely opened and a soft flat aseptic sponge threaded with silk was inserted to prevent soiling of the cavity. After a little more dissection the bowel was quite freed and clamped well above the

disease, and the peritoneal wound was closed with a continuous silk suture after removal of the sponge. The bowel was cut across below the clamps, which were then removed and all bleeding points secured.

As it was found that the ends of the divided rectum could be approximated with ease a Murphy's button was used to produce an end to end anastomosis. After a thorough irrigation of the wound with sublimate a drainage-tube was inserted and the skin sutured with silkworm gut and bichloride gauze dressings applied.

The operation lasted over an hour and a half, but no great amount of blood had been lost and there was but little shock. The resected portion of the rectum was covered on its anterior surface with peritoneum equal in size to half-a-crown. This was adherent to the new growth and its surface presented a puckered appearance, showing that this membrane was becoming involved.

The following day a little flatus was passed by the anus.

On September 3rd, in consequence of abdominal distension and some pain, a Jacques' catheter was passed into the upper rectum through the anus and button, giving exit to some liquid fæces and much flatus with considerable relief.

On the 6th a fœculent discharge was found to be passing through the wound, from which a couple of sutures had been removed, showing that the button had failed to procure complete union.

On the 10th, i.e., 10 days after the operation, the button being loose, it was removed through the wound, through which all the motion now passed, excepting only such as lodged in the distal portion.

On October 17th, i.e., six weeks after the operation, as I found that although the wound was healing well fæces became impacted in the anal portion, the patient was placed under ether again and I divided the distal portion of the gut, thus prolonging the original incision through the anus. Hence all attempt at preserving the natural outlet was abandoned.

The temperature for the first six days averaged 101·2 at night, but fell after the administration of a saline purge on the eighth day.

The rectal outlet showed at first a tendency to contract, to counteract which a bougie was passed daily for a couple of weeks. Since then, as this tendency has ceased, no bougie has been needed.

The patient, who is here to-night, has put on flesh and can get

about well. The bowels act well, and although, of course, she cannot have much control, stricture, which so often follows perineal excision, is here absent. At present there are no signs of recurrence.

Marcy, of Boston, records a successful case of rectal anastomosis with the aid of Murphy's button, but although my attempt to do so proved a failure, the patient has been relieved of her disease, which would have been impossible, or if not impossible at all events, I think I may say, unjustifiable by the old perineal route.

Mr. CLUTTON said he believed carcinoma high up in the rectum could be removed without Kraske's operation. In three such cases he had succeeded in removing the disease without taking away either the scarum or the coccyx. Kraske's operation or a modification of it had been attended with a fair amount of success. The method which he himself practised was that of making a free incision beside the coccyx from the anus, dividing all the tissues, and introducing one hand past the disease into the peritoneal cavity. The sigmoid flexure or highest part of rectum was then pulled down and clamped on a level with the anus. The whole of the diseased rectum from the highest point down to the sphincter ani could then be easily cleared out. This new and healthy bowel, which had been dragged down, was then sutured to the remains of the anus with its sphincter. Of three such cases he had previously done an inguinal colotomy in one, in order to divert the fæces and enable him to introduce a plug from above, but it was not a necessary part of the operation. He did not think Kraske's operation was essential for a high removal, especially in women. It added materially to the shock and it was possible to remove high carcinoma without it as he had described. In man it would materially assist the operation if a modification of Kraske's operation were done. He held that these high operations should be attempted, and he congratulated the author on the absence of recurrence in the first of his cases. He insisted on the difference observed in the tendency to recurrence in these cases.

CASE OF A CORK IN THE ADULT MALE BLADDER.

By G. BUCKSTON BROWNE, M.R.C.S.

MR. BUCKSTON BROWNE showed the fragments of a cork which he had removed from the bladder of a gentleman aged 54, after breaking up the cork with a lithotrite. The original cork was thinner at one end than at the other, and was introduced thin end first by the patient into the external urethral meatus. He did this one night at bedtime when staying at a friend's house, in the hope of preventing an involuntary nocturnal passage of water from which he sometimes suffered. In the morning the cork had dis-

appeared, and, as events subsequently proved, it had passed into the bladder. Seven months later the patient consulted Mr. Browne on account of considerable vesicle distress. The foreign body was detected, and being found to be too large to be withdrawn whole through the urethra, it was broken up in the bladder with a fenestrated lithotrite. The fragments of cork were not removed without difficulty owing to their lightness and noiselessness, but eventually the bladder was entirely evacuated, and for eighteen months the patient has remained perfectly well. It was pointed out that it was physiologically interesting that the urethra should be able to swallow so completely a foreign body of a certain shape. And surgically it was to be noted that since cork emitted practically no sound on being struck with an instrument, the manipulation and removal of such a body from the bladder, through the natural passages, depended upon the sense of touch and upon neither sight nor hearing.

TWO CASES OF RIGHT HEMIPLEGIA WITH EPILEPSY TREATED BY TREPHINING.

By T. OUTTERSON WOOD, M.D., M.R.C.P., and E. COTTERELL,
F.R.C.S.

CASE I.

M. P. was admitted under my care into the West End Hospital for Diseases of the Nervous System, Welbeck Street, on January 1st, 1894. She was 3 years of age, paralysed on the right side, and unable to use her hand, arm, and leg.

She was a perfectly healthy child till when a year old she fell off a hayrick. A few weeks after she had an apoplectic seizure and lost the use of her right arm and leg. In a short time she had two epileptic seizures (July, 1892), and again in July, 1893, *i.e.*, six months prior to her admission, she had several more fits.

On admission, the hand and arm were strongly flexed and rigid, the leg was rigid, and the child could only stand or hobble along by holding on to something. There was distinct flattening of the skull over the left rolandic area corresponding to the right arm and leg centres, and from the fact that the epileptic seizures always had commenced in the right thumb and fingers, I asked

Mr. Cotterell to see the case with the view of operating. This was agreed upon, and the result you see is freedom of movement in the hitherto rigid limbs, and there has been no return of the fits. Mr. Cotterell will describe the operation.

CASE II.

F. L. This girl, aged 12 years, was admitted under my care into the West End Hospital for Nervous Diseases, Welbeck Street, in August last.

She had been paralysed from birth, and the mother stated that when the patient was born the labour was severe and prolonged, necessitating delivery by instruments. She is one of five children. Of the others, three are sound and healthy, and one died in infancy, but not of paralysis.

On admission, there was considerable rigidity of the right hand and arm and legs. The hand and arm were strongly flexed, and bluish-red in colour. There was some rigidity of the right knee, with wasting of the leg and inversion of the foot. The pupils were equal, acted to light, and there were no fundus changes. The tongue was protruded to the left, and the lower facial muscles showed weakness.

The first epileptic seizure took place in April last, and she continued to have seizures off and on at irregular intervals up to the time of the operation.

There was a well-marked *aura* of a feeling of numbness and tickling in the right thumb, which she had time to grasp with her other hand and call to the nurse before losing consciousness.

Having the other case in view, I thought it advisable to call in Mr. Cotterell, and we decided upon an operation to explore the region corresponding to the right thumb centre. The operation took place on September 21st, and Mr. Cotterell will describe it.

The girl has greatly improved in general health, there has been no return of the fits, the hand and arm are less rigid, and she can walk better.

Mr. Cotterell said that, with regard to the case of M. P., there was some flattening on the right side over the rolandic area where he trephined. On opening the dura mater he came down upon a distinct cyst connected with the arachnoid, which he removed, and the patient was now fairly well. It was probably an old hæmorrhagic cyst.

With regard to the second case, except that the dura mater was slightly thickened, all the structures, including the brain, appeared to be healthy.

THREE CASES.

By HERBERT W. ALLINGHAM, F.R.C.S.

(1) COLOTOMY: ENTEROPLASTY: RESECTION OF ARTIFICIAL ANUS.

Mr. H. ALLINGHAM showed a patient, aged 47, who, after an attack of acute dyspepsia about eight years ago, had been subject to occasional attacks of intestinal obstruction. In presence of an acute attack of ten days' standing, he had opened the abdomen in the left inguinal region and made an aperture in the large gut. As the obstruction was not relieved thereby, he subsequently made another opening over the cæcum, and as even then he could not discover any obstruction in the neighbourhood, he examined the small intestine *seriatim*, and ultimately discovered a stricture at a spot corresponding to the junction of the ileum with the jejunum. He performed enteroplasty, and, a month later, he resected the artificial anus in the left inguinal region, using a Mayo Robson's bobbin. The result had been satisfactory.

(2) GASTRO-ENTEROSTOMY.

Mr. ALLINGHAM next showed a patient, aged 41, who had suffered for about a year with gastric trouble, accompanied by loss of flesh and constant vomiting. He opened the abdomen and found a large mass surrounding the pylorus. He therefore performed gastro-enterostomy, and the result had been excellent, the patient having since gained 2 stone in weight.

(3) PYLOROPLASTY.

Mr. ALLINGHAM also showed a patient, aged 34, who had had an acute attack of gastric trouble about seven years since, and suffered from constant vomiting. On opening the abdomen he found great dilatation of the stomach, caused by a stricture of the pylorus consequent upon a local ulcer. He performed pyloroplasty with a perfectly satisfactory result.

Mr. BIDWELL asked the author if he thought Loretta's operation was much inferior to the one he had performed, mentioning that some very successful cases of dilatation of the pylorus had been recorded. Loretta's operation was certainly simpler, and the incision was made through healthy tissue. With regard to the case of gastro-enterostomy, he had dealt with two cases by Halsted's method of stitching, and that method seemed to be very satisfactory. In one case the patient died from broncho-pneumonia a fortnight after the operation, and the specimen he had obtained showed that the anastomosis was very satisfactory.

Mr. ALLINGHAM, in reply, said he had not done Loretta's operation because he thought the plan he had followed a better one. In Loretta's operation one had to open the stomach, and in pushing the finger through the stricture one was exceedingly likely to split it. Moreover, the introduction of a piece of healthy mucous membrane in the stricture gave less risk of subsequent contraction. He had himself tried Loretta's operation in one case with only partial success; in that the symptoms returned, and, *post-mortem*, they found that the patient was really suffering from a scirrroid condition of the pylorus. In relating his case he had said that he had seen no evidence of perforation. There were only a few slight adhesions about the pylorus which was very hard and unyielding. When he had opened it there were scars, &c., to prove the existence of past ulceration. The reason that he had always liked Mayo Robson's bobbin was that by uniting the intestine together over some rigid structure which kept the parts at rest, acting in fact as a sort of splint, there was no chance of contraction or dilatation, for three or four days, at any rate, and this was a point of great importance. No stitching could ensure against this contingency. He had used the bobbin in a large number of cases with eminently satisfactory results, and he was convinced that it was the best way to proceed. He had once had recourse to Maunsell's operation, but it proved a failure.

A CASE OF PSEUDO-HYPERTROPHIC PARALYSIS WITH KNEE-JERKS PRESERVED.

By W. S. COLMAN, M.D.

DR. W. S. COLMAN sent a boy, aged 10 years, with a history of five years' weakness in the legs. The enlargement of the calves was first noticed five years ago. The condition had gone on increasing until ten months ago, when he had an attack of scarlet fever, after which it made rapid progress, and weakness in one arm had been noticed, with occasional pain in the lower limbs and slight difficulty of micturition. There was no history of the disease in other members of the family. The boy presented a well-marked medio-frontal ridge. The mental condition was good. The enlargement of the calves was now well marked, and the vasti externi were much increased in bulk. The same change was evident in the infraspinatus. Other muscles were also involved,

for example, the deltoid and triceps were distinctly firmer than normal. There was, in addition, some atrophy of the biceps, the pectorales and latissimi dorsi. The knee-jerks a few weeks since were distinctly exaggerated, but though that was no longer the case, they were still brisk. Dr. Colman suggested that this condition of the knee-jerk was to be explained by the very slight affection of the vastus internus on each side, as Sherrington had shown experimentally that this was the essential part of the quadriceps for the production of the knee-jerk.

April 8th, 1895.

A CASE OF CONGENITAL CHOREA.

BY GEORGE F. JOHNSTON, M.D.

DR. G. JOHNSTON showed a lad, aged 12, born at term without instruments, without special difficulty, and who was not asphyxiated at birth. According to his father's account he had ever since birth been the prey of slight involuntary movements, most marked on the left side, resembling those of chorea. The movements ceased entirely during sleep. There was no history of fits, and no rigidity. The deep reflexes, though brisk, were not exaggerated, the knee-jerk exhibiting the phenomenon sometimes observed in chorea, viz., that the leg remained raised for a short time before falling to its previous position. No ankle clonus. The lad appeared sharp and intelligent, though his education had been neglected. There was no cardiac mischief. The boy had had pains in his joints, and his father had suffered from rheumatic fever. The author pointed out that the movements of the hands when closely observed occasionally appeared to resemble athetosis rather than chorea, and he discussed the probability of its being this condition rather than the latter.

Dr. GARROD said he had a case under his care almost exactly similar to this one, the patient being a girl of 8, who presented the same quasi-choreic movement, more marked on the left side. She was mentally feeble, but there were no signs of any disease of the brain.

Dr. SHUTTLEWORTH said the case was interesting because the boy presented the minute movements of the fingers which were usually con-

sidered athetotic, and were associated with lesions of the Rolandic area. Against this view there was the fact that the lad presented no evidence of the existence of spastic rigidity. He pointed out, in respect of intelligence, that the mere fact of the boy's being intelligent was not, *per se*, an argument against the case being one of athetosis. The physical infirmity often masked the mental capacity, and when under proper treatment the former had been ameliorated, the intelligence often developed in a marked degree. He mentioned that there were now special classes under the London School Board at which children, handicapped by mental or physical infirmity, were taught separately, and a course of training at one of these centres would (he thought) be attended with great advantage to the lad.

CASE OF RIGHT FACIAL HEMI-ATROPHY.

BY C. E. BEEVOR, M.D., F.R.C.P.

DR. BEEVOR showed a girl, aged 20, who presented marked facial hemi-atrophy on the right side. Two years ago two teeth in the right upper jaw decayed and broke away, and six months later, without any injury, she noticed a dimple in the right cheek. There was marked thinning of the left cheek, with falling in of that side. The measurement from the middle line of the upper lip to the meatus auditorius externus was a quarter of an inch less than on the right side. The muscles of the face and for mastication were normal, and re-acted to Faradism, and the former re-acted to a weaker current on the right than on the left side. The tongue and soft palate were normal, and the bones of the face and the nasal cartilages were not affected. Sensation to touch, pain, heat, and cold were normal. Taste was not affected. The disease was considered to be in the trophic fibres of the fifth nerve, which, according to Mendel, were in the upper root of that nerve.

A CASE OF FRIEDREICH'S DISEASE.

BY LEONARD G. GUTHRIE, M.D.

DR. L. GUTHRIE showed a boy, aged 9, who presented symptoms of early Friedreich's disease. There was no family history of the complaint. The symptoms dated from the time when he began to walk at three. These were: (1) instability on standing, markedly increased with heels together and eyes closed; (2) a rolling gait

with inability to "toe the line"; (3) slight rhythmical tremors affecting the whole body, increased on exertion; (4) slight inco-ordination of the hands; (5) complete absence of knee-jerks. Sensation was everywhere normal, and there were no ocular symptoms or deformities. Speech and intelligence were unaffected, and the sphincters were normal. There had been no definite tabetic pains. He had been under observation for four months, and the symptoms appeared to be increasing in intensity.

Dr. H. MACKENZIE said he had no doubt as to the diagnosis in this case. He had a similar one under his observation. He opined that these isolated cases were much commoner than had been thought. He observed, however, that he did not understand why the author described it as an early case of the disease.

Dr. ORMEROD agreed with the diagnosis, but pointed out that it was necessarily made on somewhat slender evidence, for the symptoms were narrowed down to the peculiar gait and the absence of knee-jerks; but the other symptoms mentioned by Friedreich, such as nystagmus, involvement of speech, and family proclivity, were wanting. He admitted, however, that the affection of speech might not come on till late in the disease, and the nystagmus still later. They had to say it was a case of Friedreich's disease chiefly because they knew of no other disease that would explain the symptoms—such as they were. He pointed out that another group of cases has been made, in which the same gait and family proclivity obtained, which were due to cerebellar disease; but that in such cases the knee-jerks were preserved.

Dr. BEEVOR thought it looked like a case of Friedreich's disease, though it was difficult to be quite sure of the fact in the absence of the other symptoms described by Friedreich, which, however, might develop later.

Dr. COLMAN said there were other symptoms pointing to its being a case of Friedreich's disease, viz., general tremor of the trunk and a rolling movement of the head on the trunk, which were rarely met with in cerebellar disease, or in cerebellar sclerosis.

CASE OF BLADDER GROWTH REMOVED BY SUPRA-PUBIC CYSTOTOMY.

By F. SWINFORD EDWARDS, F.R.C.S.

G. E., aged 54, was admitted on February 16th, 1895, for hæmaturia. His mother died of cancer.

Three months ago first passed blood in urine without pain. The hæmaturia lasted for three or four weeks. After some intermission it came on again, when he came to the hospital as an out-patient. On February 10th, when at stool, noticed a stabbing

pain in right lumbar region, which lasted only for a moment, and was followed by a dull aching pain in the same region, and after this passed bloody urine until February 14th. On the 15th the bleeding came on again.

On admission complained of pain in right lumbar region and nowhere else. No increased frequency at night, but every hour by day. No pain on micturition. Appetite good; no sickness. The stream was good. The urine was acid, and contained blood-mucus, a little pus, and albumen.

On February 20th cystoscopy, when a villous growth was clearly seen on left side of the base. It was studded with hæmorrhages, which gave it the appearance of a black-currant bush.

On February 27th I opened the bladder above the pubes, and found this papilloma, which had a thick and short pedicle. I clamped this, and then removed the growth with scissors. There was no excessive bleeding. Through a vaginal speculum I swabbed the wound with tr. ferri perchlor. The bladder was then irrigated with boracic solution, and a double Jacques' catheter inserted as a drain.

I might mention that there was no induration about the base of the tumour, and I take it to be of an innocent character. The subsequent history was uneventful. The drainage-tube was removed on the third day, and the patient passed water naturally for the first time on the 18th day after the operation. He is now, I believe, quite well, and can retain his water, which is quite clear and free from blood, for at least four hours by day.

The chief point of interest in this case was the diagnosis—as between bladder and kidney. For although the symptoms pointed strongly to a bladder growth, the supervention of pain in the right lumbar region, followed on one occasion by free hæmaturia, suggested the possibility of some renal lesion.

I would ask the opinion of the Fellows as to whether the lumbar pain might have been due to the bladder lesion, although on opposite sides?

CASE OF SYPHILITIC DISEASE SIMULATING THE APPEARANCES OF CHARCOT'S DISEASE.

By H. J. WARING, M.S.

THE patient is a woman aged 43, who first came under my observation in November, 1893, and who was at that time suffering from very marked tertiary syphilis of both knee-joints. The synovial membrane and the surrounding tissues were thickened, and the seat of localised enlargements, some being of the size of a pigeon's egg. Potassium iodide was given in gradually increasing doses, and in about two months the enlargements of the knees had practically disappeared. She then ceased to attend the hospital. About three months afterwards she again came under observation, when both knee-joints were very much swollen and filled with fluid. According to the history of the patient this condition had come on quite suddenly. They then presented all the appearance of a typical Charcot's joint. There were no signs of tabes dorsalis, except that there was an uncertain history of the occurrence of lightening pains in the lower extremities. The pupils were normal, and there was no absence of knee-jerk. She was treated with potassium iodide and locally a poroplastic support was applied. After several months the right knee got much better, and remained so except that at one period there was a slight relapse. The left improved for a time, but occasionally it becomes much worse, being swollen and having all the symptoms of the original condition. About three months ago the knee reflexes became slightly exaggerated and since that time this condition has become more apparent. At the present time the right knee is fairly quiescent. The left knee-joint is considerably swollen, and the ligaments of the articulation appear to have been partially destroyed. The joint is "flail-like," and walking is somewhat difficult without the artificial support. The synovial membrane in the anterior part of the joint and the walls of the large bursa immediately above the joint are thickened and feel as if they were infiltrated with a soft jelly-like material. There is also some thickening of the bones in the neighbourhood of the articulation. The pupils react to light. The knee-jerk in the left leg is increased, but there is no clonus. On the right side there is a

good knee-jerk. The reflexes are easily obtained at the wrists, especially upon the right side. There is some bladder trouble; she must micturate at once when she has the desire, otherwise she passes urine involuntarily. When she stands with her eyes closed, she staggers and might fall.

The electrical reactions are normal, according to the report of Dr. Lewis Jones, who kindly examined them for me.

This case appears to me to be a case of syphilitic disease of the knee-joints, in which at first the synovial membranes were the chief seat of the morbid process, and later on, when the joints became suddenly enlarged, an acute or sub-acute synovitis was established. It is quite possible that there may be some disease of the spinal cord which has some connection with it. In any case the affection has many of the clinical appearances of a case of Charcot's disease, but there are no definite signs of tabes dorsalis. Possibly the case may be one of ataxic paraplegia with a concomitant joint affection.

Most of the symptoms and the appearances of the limbs point to a tertiary syphilitic affection of the joints, which clinically resembles a case of Charcot's disease, and that later signs of an affection of the spinal cord, possibly combined lateral and posterior sclerosis, developed as the result of a syphilitic process.

CASE OF RENAL TUMOUR.

By HERBERT W. ALLINGHAM, F.R.C.S.

MR. H. ALLINGHAM showed a girl 3 years of age, together with a tumour weighing $2\frac{1}{2}$ lbs., which he had removed through an abdominal incision six months before. It proved to be a tumour of the right kidney. The child first began to be ill in November last, but there was never anything abnormal in the urine. She was admitted into the Great Northern Hospital in January of this year. It was somewhat difficult at first to make out the nature of the tumour, whether ovarian or renal, especially as it was adherent to the Fallopian tube. The gland substance of the kidney was not much damaged, the growth starting from the capsule and growing inwards.

Mr. Lockwood commented upon the differences in the structure of these tumours, and asked the author what had been discovered in respect

of this particular growth. Some of them were certainly highly malignant, while others, though their structure might appear adenomatous, did not recur.

Mr. SWINFORD EDWARDS asked what were the urinary symptoms before operation, and, as a detail of surgical technique, what the author had done with the ureter which he divided.

Mr. ALLINGHAM, in reply, said he had not yet received the report of the histological examination of the growth, but it looked sarcomatous. No glands could be made out in the abdomen, and the growth appeared to grow from the capsule of the kidney and not from the suprarenal bodies, as was thought to be frequently the case. There had been no urinary symptoms, though the urine was carefully and repeatedly tested. It would be observed that the gland structure was not much damaged. He ligatured the ureter, and, as there was no contra-indication, he dropped it back into the abdomen, and no untoward symptoms had followed. The child was now in perfect health.

TWO CASES.

By P. S. ABRAHAM, M.D., F.R.C.S.I.

(1) PITYRIASIS RUBRA PILARIS OF DEVERGIE.

H. D., a boy aged 6, three weeks ago suddenly developed bright redness of both palms and soles, soon leading to extensive desquamation of large plaques of epidermis. The child was out of sorts at the time. A redness and peculiar roughness was also observed at the back of the neck and down the spine, and also on the knees and elbows. He came under Dr. Abraham's observation a few days after the affection first appeared, and presented an extensive psoriasis-like desquamation over an erythematous surface of the palms and soles, a hypertrophic condition of the follicles of the skin of the nape of the neck and back, scaliness of the elbows and knees, and a very general xerodermic condition of the skin of the face, limbs, and trunk, with slight branny desquamation and an eczema-looking appearance of the eyelids and mouth and nose, also much pityriasis in the scalp. The child has not complained of itching. The mother states that the child had a precisely similar affection two years ago, about six months after an attack of scarlatina. The skin then became well in a few months under treatment.

The case appears to come under the category of Devergie's pityriasis rubra pilaris, exhibiting the features upon which he lays

particular stress, *e.g.*, its sudden onset with hyperæmia, the subsequent desquamation, and in parts great similarity to ordinary psoriasis, the pityriasis of the scalp, and the xerodermic condition of the skin, and, above all, the peculiar follicular affection.

These cases are rare, particularly in children.

(2) MULTIPLE SUBCUTANEOUS NODULES (? TUBERCLE) IN AN INFANT.

M. R., a female infant 7 months old, well grown and well nourished, exhibits a number of nodules beneath the skin, and more or less implicating the latter. Several are of a bluish-red tint; the smaller appear to be quite subcutaneous, the larger give some sense of fluctuation. The first appeared three months ago on the thigh, and others have since come in various positions and at irregular times on the limbs, trunk, and head. Very few occupy the position of lymphatic glands. The largest one is beneath the right jaw, and seems to be rather painful on handling.

The case is brought chiefly for diagnosis. Although the exhibitor inclines to the belief that the nature of the growths is tubercular, an exploratory excision is to be made.

The family history is as follows:—Three brothers have had rickets; the infant herself has snuffles and had “thrush”; the father is healthy, but his sister was consumptive; the mother has “a delicate chest,” her father was consumptive, and mother and sister with weak chests. She has had eight children, one being premature, and two miscarriages. [On subsequent excision the nodules were found to be abscesses with the thickened walls studded with giant-cells and other elements of tubercle.—P.S.A.]

Mr. LEOPOLD HUDSON said he had had an opportunity of observing a case very similar to the author's first case. It was that of an infant, seen with Dr. A. Garrod at the Hospital for Sick Children, who presented 23 subcutaneous nodules about the body. These at first were regarded as tubercular, but on opening one of them no caseous material was found, the contents being a greenish pus; in fact, the case was evidently one of chronic pyæmia. There was a distinct history of thrush, which he thought might have been the means of infection. He had seen two other cases, within 18 months, of subcutaneous nodules not obviously abscesses, and both turned out to be cases of chronic pyæmia consequent on ulceration of the navel.

Dr. GUTHRIE said such nodules were by no means uncommon, for he had seen a good many of them. They might be pyæmic, but he thought they were usually strumous, and in the author's case the strumous history

was well marked. As to the first case, he remembered the case of a man, aged 40, who had some eczema about the folds of the elbows, above the knees, and what he described as burring of the soles of the feet and palms of the hands. A week later there was intense desquamation of both hands and feet as in this case. He asked what was the prognosis in such cases.

Dr. ABRAHAM, in reply, said the boy had had a similar attack two years before, from which he had perfectly recovered in a few months. He gathered from the literature of the subject that there was no certain prognosis, some of the cases getting well after a time, while others went from bad to worse, or the disease reappeared after apparent recovery. There were several distinct varieties of the affection, and this particular case seemed to belong to the xerodermia class.

THREE CASES.

By J. ASTLEY BLOXAM, F.R.C.S.

(1) A CASE OF MACROCHEILIA.

MR. BLOXAM showed a girl, aged 12, who presented a swelling extending from just over the mid-line on the left side of the lower lip, and involving the whole of the right side. It also extended over the mucous membrane of the cheek for a short distance on the right side. It extended downwards to the lower border of the inferior maxilla in front and on the right side. The swelling was of an irregular shape, and the mucous membrane was lobulated, owing to the contraction of scar tissue. The right alveolus of the upper jaw was displaced inwards by pressure of the growth. Three large veins could be seen coursing over the growth, and patches of small vesicles existed on the right side along with one very distinct patch on the left side of the chin. The tumour was solid to the feel, and the skin was not involved. The tumour was freely movable over the deeper structures, and was not encapsuled. There were one or two soft enlarged glands in the sub-maxillary region. The urine was clear and contained a very faint trace of albumen.

(2) DEFORMITY (CONGENITAL) OF LEFT SIDE OF FACE.

Mr. Bloxam showed a healthy-looking child, aged 15 months, who presented a curious abnormality of the left side of the face. The external auditory meatus was absent, together with most of the external ear, the only remains being a lobulated fold of skin about $1\frac{1}{4}$ inches long. Near the upper end, where it joined the face in front, were two small round depressions. There was a

small puckered depression in the skin about $1\frac{1}{2}$ inches above the inferior border of the inferior maxilla, and about half-way between the mid-line of the chin and the angle of the jaw. Both inferior maxillæ were of equal size, but the left cheek looked larger than the right. There were no other congenital defects about the body.

The PRESIDENT said he had seen a great number of these cases, and he had presented a specimen when Sir James Paget had read his paper before the Royal Medical and Chirurgical Society, this specimen having subsequently been presented to the Museum of the Royal College of Surgeons. He had seen as many as three rudimentary ears at a time, sometimes two or three on one side and one rudimentary ear on the other. In none of these cases had there been any hearing at all when the deformity was bilateral, and even when it was limited to one side there was often imperfect development of the labyrinth on the other side, though the auditory conducting apparatus might be perfect. He pointed out that there was generally an oozing from some point near the imperfectly developed ear, but in this case he had been unable to detect any opening. The absence of an opening was very exceptional, and Sir James Paget had never seen a case in which there was not an opening of some kind. He alluded to the fact that Dr. Allen Thompson, who had come to London to hear the paper just referred to, had brought with him drawings of several such cases, and one of them was so like one of his own that it was difficult to distinguish one from the other.

(3) RESTORATION OF NOSE.

Mr. J. Astley Bloxam showed a man, aged 33, a soldier, who had applied on account of deformity of nose from syphilis. An attempt had been made to restore the nose by the Indian method of pulling down a flap from the forehead, but with only a small measure of success. An attempt was then made to graft on a recently amputated finger, but though done within twenty minutes of its removal and persevered in for ten days, it proved a failure. The patient then volunteered to have the attempt repeated with a stiff finger of his own, and it was decided to give this plan a trial. The tendons of the left second finger were removed by median palmar incision, and the wound was packed, but a superficial line along the side of the terminal phalanx sloughed. On June 21st, the terminal phalanx and nail having been removed, the flap transplanted from the forehead, which covered in the nasal gap, was divided down the centre, and the raw surface of the finger and divided skin were sutured together, the arm being fixed to the side by a plaster of Paris bandage. The patient was fed by means of a tube passed through the fingers. The line of junction healed

well, and on July 14th the structures on the inner and back part of the finger were cut through with the electro-cautery. On July 20th the finger was cut through on the external and palmar surfaces so as to make a long external flap. This caused congestion of the finger, which was pricked all over twice, bleeding pretty freely. On the 24th the division of the finger was completed by cutting through the middle of the first phalanx with bone forceps. The resulting congestion was again relieved by pricking. The distal half of the first phalanx was then removed from the nose by an incision passing through the joint, raising a flap on the left. The arteries spouted freely and had to be tied. On September 4th the finger had adhered well to the face in its upper third at the base of the forehead, but the lower two thirds had failed to adhere. By October 4th the wound of separation had completely healed, and the patient could feel sensations over the second phalanx, though he referred such sensations to its proximal end, having no idea of locality. The second phalanx not being sufficiently near the forehead, was raised by removing a square flap of facial skin at its base. A flap was next raised on the left side of the finger, and the substance of the cheek was dissected up and sewn to this raw surface to make the side of the nose. The remains of the ala on the left side were cut free, having its deep surface raw; to this deep surface was sewn the raw surface of the lateral flap by cutting it underneath, thus making an ala with epithelium on its nasal and facial aspects. A similar operation was done on the right side. The left side of the nose was a great success, but the right side had not united so well, owing to suppuration.

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